



Multilingualism and developmental language disorder in Southeast Asian speech-language pathology practice: an international survey

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1 **Title: Multilingualism and developmental language disorder in Southeast Asian speech-**
2 **language pathology practice: an international survey**

3 **Running head:** Multilingualism and developmental language disorder in Southeast Asian
4 practices

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7 **Keywords:** SLPs, challenges, multilingualism, DLD, treatment, assessment
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For Peer Review Only

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3 **9 Abstract**
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5 **10 Purpose:** This study aims to explore the current practices and challenges faced by speech-
6
7 **11 language pathologists (SLPs) in three Southeast Asian countries (Malaysia, Indonesia, and**
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9 **12 Vietnam) in assessing and treating multilingual children with developmental language**
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11 **13 disorder (DLD).**

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14 **14 Method:** A survey was designed and administered to 110 SLPs across Malaysia, Indonesia,
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16 **15 and Vietnam. The survey contained 60 questions on current practices and knowledge of**
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18 **16 existing resources for assessing and treating multilingual children with DLD. Data were**
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20 **17 analysed to identify relationships between practices and demographic variables including**
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22 **18 country of origin, years of service, and SLP multilingual status.**

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25 **19 Result:** Current practices reveal little knowledge and/or use of standardised tests for DLD
26
27 **20 across countries, but relatively high self-perceived competence when working with**
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29 **21 multilingual clients for Indonesia and Malaysia. However, several challenges were perceived**
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31 **22 across the board in practice with multilingual children, including socioeconomic challenges**
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33 **23 (i.e., costs involved for families and social status), insufficient training on the relevant topics,**
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35 **24 and limited access to appropriate tools and resources in their current practice.**

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38 **25 Conclusion:** Findings suggest the need for training and appropriate assessment tools to
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40 **26 ensure the adoption of evidence-based service delivery for multilingual caseloads,**
41
42 **27 minimising misclassification of DLD and boosting confidence levels in SLPs in Southeast**
43
44 **28 Asia.**

45
46
47 **29 Keywords:** speech-language pathology practice, Southeast Asia, Developmental Language
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49 **30 Disorder (DLD), multilingual**
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31 Introduction

32 Linguistic diversity is a common feature of many countries with a rich dialectal landscape as
33 well as in societies that experience heavy migration (Hugo, 2004; Ottaviano & Peri, 2006). The
34 caseloads of SLPs are therefore more and more diverse, and a culturally responsive service
35 provision, which identifies the appropriate therapy goals and resources based on the patient's
36 cultural and linguistic background, is essential (Verdon et al., 2015). In this study, we
37 developed a comprehensive survey to investigate the current knowledge and practices of SLPs
38 in three Southeast Asian countries, namely Malaysia, Vietnam, and Indonesia, with a focus on
39 supporting multilingual children. This survey is the first of its kind to collect data on the
40 existing practices and perceived challenges in service to multilingual children in Southeast
41 Asian countries. As will be discussed in this introduction, this is relevant for the following
42 reasons: first, multilingualism is known to pose challenges in speech-language pathology
43 practice, with many studies coming from English-speaking countries (e.g., Jordaan, 2008;
44 Mennen & Stansfield, 2006; William & McLeod, 2012; Sharpe & Perovic, 2023); however,
45 little is known about how it is dealt with in Southeast Asian countries, where multilingualism
46 is an integral part of many countries' demographics. Second, the discussions around the
47 definition and the criteria of Developmental Language Disorder (DLD) have been developed
48 by largely English-speaking experts in English-speaking countries (Bishop et al., 2017). It is
49 therefore crucial to understand what information is available to SLPs in other countries,
50 including in Southeast Asia, around the protocols and available tools for multilingual children
51 with DLD. The data collected in this survey will be a necessary step to assess the use of
52 evidence-based frameworks for service delivery in these countries. In what follows we will
53 briefly introduce the issues related to DLD and multilingualism, and the landscape of speech-
54 language pathology in the three countries.

55

56 **Speech-language pathology in multilingual settings**

57 Speech and language disorders are the most prevalent childhood disorders (Wren et al., 2016).

58 DLD is a neurodevelopmental disorder of communication which occurs in about 5-7% of 5- to

59 6-year-old children and is characterised by difficulties in expressive and/or receptive language

60 which do not resolve with language acquisition and schooling (Bishop et al., 2017; Dollaghan

61 & Horner, 2011; Pham et al., 2019). Difficulties with speech and language during early

62 childhood are associated with many detrimental lifelong impacts for children, including

63 difficulties with learning to read and write, forming relationships with friends and family, self-

64 esteem, mental illness, education, and employment (Conti-Ramsden et al., 2009; McCormack

65 et al., 2009), but with early intervention, many of these adverse effects can be significantly

66 reduced (Law et al., 2004).

67 Research in several languages has revealed the diagnosis of DLD to be particularly problematic

68 in the case of multilingual children. Firstly, the linguistic profile of typically developing

69 multilingual children and that of children with DLD has been shown to overlap on many

70 clinical markers of the disorder, particularly in early language, making early detection

71 challenging (Garraffa et al., 2019; Marinis et al., 2017). Another factor that contributes to the

72 challenge of assessing DLD in multilinguals is language proficiency of multilingual children,

73 which is heterogeneous and typically changes throughout their lives (Gathercole, 2014; Hoff

74 & Core, 2013; Kohnert, 2010). This may result in differences in DLD manifestation across the

75 languages spoken by the child and at different times throughout the child's life. These

76 challenges are known to have severe consequences, with both under- and overdiagnosis of

77 DLD being prevalent in multilingual children (Marinis et al., 2017).

78 This sensitive issue has given rise to a great body of work trying to address the best practices

79 for correctly diagnosing DLD in multilingual children, together with the creation of assessment

80 tools that are specific for multilingual children from individual tasks (nonword repetition,

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3 81 narrative tasks e.g., Antonijevic-Elliott et al., 2020; Gagarina et al., 2019) to comprehensive
4
5 82 assessments (most notably the Language Impairment Testing in Multilingual Settings,
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7 83 LITMUS (Armon-Lotem et al., 2015). Among the suggested guidelines, there is scientific
8
9 84 consensus that assessments should ideally be carried out in both the native language and the
10
11 85 societal language, but never the societal language only (e.g., International Expert Panel on
12
13 86 Multilingual Children's Speech, 2012; Royal College of Speech and Language Therapy
14
15 87 (RCSLT), 2018), especially when this is not the child's dominant language (Hamdani et al.,
16
17 88 2024). If no tools are available in the home language, it is recommended that alternative
18
19 89 approaches to assessment such as dynamic assessment, parent interview and observation are
20
21 90 used (De Lamo White & Jin, 2011; Orellana et al., 2019). When assessing multilingual
22
23 91 children, Verdon (in preparation) identifies five steps for culturally responsive assessment,
24
25 92 these are (1) undertaking a comprehensive case history and language profile, (2) use of an
26
27 93 interpreter (3) use of a dynamic assessment, (4) use of formal tests and (5) use of family contrast
28
29 94 analysis.

30
31 95 Despite these efforts, a predominantly monoculturally- and monolingually-oriented mindset is
32
33 96 still widespread among policymakers and workplaces (Clyne, 2008). While the causes of these
34
35 97 challenges to culturally responsive practice may be heterogeneous and vary considerably
36
37 98 between countries, an ensuing lack of confidence experienced by SLPs seems to be
38
39 99 widespread¹. Even when guidelines for multilingual clients are present and advocate for
40
41 100 assessing, treating, and maintaining the home language of the child, SLPs are not confident
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43 101 they are adhering to them and may lack the appropriate resources to implement these guidelines
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45 102 (e.g., Mennen & Stansfield, 2006; Sharpe & Perovic, 2023 for the UK, where official
46
47 103 guidelines are issued by the RCSLT), often resulting in an overreliance on the societal language
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59 ¹ It is worth mentioning that lower levels of self-efficacy -namely the beliefs one holds about their capacity to
60 be effective - has been reported in the field of speech-language pathology, particularly in students (Pasupathy & Bogenschutz, 2013; McBride, 2021).

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3 104 for assessment and intervention (Jordaan 2008; Williams & McLeod, 2012). SLPs report
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5 105 having little to no access to tools for assessment and intervention in the user's native language
6
7 106 and lack professional support and training in supporting multilingual families (Bloder et al.,
8
9 107 2021; Narayan and Ramsdell, 2022; Newburi et al., 2020). Another crucial issue reported by
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11 108 SLPs practising in countries where under-represented languages are spoken is the availability
12
13 109 of normative data for the local languages, as will be discussed in more detail for the countries
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15 110 under discussion in the following section (Okalidou & Kampanaros, 2001; Tchoungui et al.,
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17 111 2018; Teoh et al., 2018; Thapa et al., 2016).
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23 24 113 **SLP practice in Indonesia, Malaysia, and Vietnam**

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26 114 This study focused on SLP practice in three Southeast Asian countries, Indonesia, Malaysia,
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28 115 and Vietnam. Of the three countries included in this study, Malaysia has the longest history of
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30 116 the speech language pathology profession, dating back to the 1990s (Ahmad et al., 2013). The
31
32 117 country has a multicultural, multiracial population of around 23 million, where the first
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34 118 language (Malay) and the second language (English) are accompanied by Mandarin, Tamil,
35
36 119 and various Chinese and Indian dialects among numerous other indigenous languages. At
37
38 120 present, there are three public universities (Universiti Kebangsaan Malaysia, Universiti Sains
39
40 121 Malaysia, International Islamic University Malaysia) offering the speech sciences
41
42 122 undergraduate training program in Malaysia (Ong et al., 2024). Although child language
43
44 123 acquisition in Malaysia has been the focus of sporadic research investigations, these studies
45
46 124 were not targeted to the needs of speech-language pathology (Razak et al., 2010). This has led
47
48 125 to the use of imported tests that are not standardised, adapted, or translated, resulting in invalid
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50 126 assessment, as the normative scores against which a multilingual child's score is evaluated are
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52 127 based on the norms for monolingual Western children (Chu et al., 2019a).
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3 128 The profession in Malaysia still faces various challenges, including lack of local formal
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5 129 assessment tools for multilingual/multicultural populations and lack of standard operating
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8 130 procedures (Razak et al., 2018). Currently, there is only one standardised normed referenced
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10 131 language assessment tool for Malay pre-schoolers in Malaysia, known as the Malay Preschool
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12 132 Language Assessment Instrument (MPLAT) (Razak et al., 2010). This assessment tool is
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14
15 133 designed to assess the areas of receptive language, expressive language, and early literacy skills
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17 134 in Malay-speaking children. Importantly, unlike many of the assessment tools developed in
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19 135 Western countries, the MPLAT is validated on speakers of the language regardless of their
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21 136 linguistic background and can therefore be considered a valid tool for assessing Malay in
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24 137 multilingual speakers also.

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26 138 Comparatively, Vietnam has a population of over 97 million people, and Vietnamese is
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28 139 the most widely spoken language. While other regional languages do exist in Vietnam,
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31 140 particularly in rural areas, Vietnamese is the official language used for all public life including
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33 141 government, health and education. Although still in its infancy, speech pathology in Vietnam
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35 142 has seen rapid development over the last decade (Atherton, 2019). The Trinh Foundation
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37 143 Australia, a non-profit organisation, has collaborated with various Vietnamese higher
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40 144 education institutions since 2009 to develop the profession using a ‘train the trainer’ model that
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42 145 is designed to build the capacity of local professionals for the development of a sustainable and
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45 146 autonomous profession into the future. In 2010, the Trinh Foundation Australia commenced
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47 147 the formal training of a Vietnamese speech pathology profession through a two-year
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49 148 postgraduate speech pathology training program in conjunction with Pham Ngoc Thach
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51 149 University of Medicine in Ho Chi Minh City. Since the commencement of the speech pathology
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54 150 training program two cohorts of SLPs have graduated from the course and one cohort has
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56 151 graduated from a short course specifically focussing on paediatric speech pathology. More
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58 152 recently the first university trained cohorts of a Masters of Speech and Language pathology in
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3 153 Ho Chi Minh City and a Bachelor of Speech and Language pathology in Da Nang graduated,
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5 154 with future courses in four major universities throughout the country currently being
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8 155 established (Medical Committee Netherlands-Vietnam, 2019).
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10 156 Many schools, hospitals and clinics do not yet have specific roles for SLPs given how
11
12 157 relatively new the profession is in Vietnam. Therefore, in settings such as hospitals some
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14 158 professionals hold dual roles (i.e., they work in a physiotherapy position but also apply their
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16 159 skills as a SLP). In paediatric settings, SLPs have set up their own private practice clinics, while
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18 160 in education settings, speech-language pathology services are often delivered by special
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20 161 education teachers. Some of these teachers have had specific training in supporting
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22 162 communication disorders, while others have not.
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26 163 The evidence base relating to Vietnamese speech and language disorders continues to
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28 164 grow with recent research focusing on speech development and assessment (Nguyen, 2017;
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30 165 Pham, et al., 2016, 2019) and multilingual Vietnamese-English speech and language in children
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32 166 (McLeod et al., 2022; Pham et al., 2019; Tran et al., 2021). Speech and language assessments
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34 167 available in Vietnamese include the Vietnamese Speech Assessment (VSA, Pham et al., 2016),
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36 168 the Vietnamese Language Assessment (VLA, Ivey et al., 2019) and The Intelligibility in
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38 169 Context Scale (ICS-VN, McLeod et al., 2012) in its Vietnamese translation and validation
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40 170 (Pham et al., 2017).
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44 171 Indonesia, with an estimated population of 237 million, consists of hundreds of ethnic
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46 172 groups, making the official national language, Indonesian, only one of several hundred local
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48 173 languages. However, there are no standardised assessments of speech and language ability for
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50 174 Indonesian language speakers (Hapsari, 2020). In response to the absence of standardised
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52 175 procedure to assess children's speech and language abilities in the Indonesian population, one
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54 176 of the commonly used tests is the Narrative Informal Assessment (Heilmann et al., 2010) for
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56 177 Indonesian kindergarten children aged 3 to 5 years old. One of the known challenges for service
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178 provision in Indonesia is the size of its population (Hill, 2021). Environmental factors such as
179 poverty, stigma, and discrimination, as well as limited access to programmes and services, put
180 children living outside of major cities at higher risk of delayed treatment (Kiling et al., 2018).
181 At the time of writing, no literature is available on the state of the SLP profession in Indonesia.
182 Little is known of the practices and challenges faced when assessing and treating children with
183 DLD in multilingual settings in Southeast Asia. In this study, we aim to bridge the gap with
184 data from Malaysia, Indonesia, and Vietnam. In particular, we look at the following questions:
185 1- What is the knowledge and ability around DLD of SLPs working in Malaysia, Indonesia,
186 and Vietnam?
187 2- What are the current practices and confidence levels in assessing and treating DLD in SLPs
188 working in Malaysia, Indonesia, and Vietnam?
189 3-What are the factors and challenges influencing service delivery with multilinguals for SLPs
190 working in Malaysia, Indonesia, and Vietnam?

192 **Method**

193 **Study design**

194 This is a cross-sectional study investigating the knowledge and ability and confidence, current
195 practices and faced challenges around multilingualism of SLPs working in Malaysia,
196 Indonesia, and Vietnam.

197 A comprehensive survey was developed by and distributed to certified SLPs. The survey was
198 designed in English and Malay by one author who is a native speaker of Malay and of
199 Malaysian English (D. C.). The Malay version was validated by five certified Malaysian SLPs
200 following two steps: revision by two authors (Y. A. R. and R. A. R.); pilot-testing with three
201 SLPs working in Malaysia. Next, the survey was translated into Bahasa Indonesia by one
202 author who is a native speaker and practising SLPs in the country (H. T. A. P.) and piloted on

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3 203 three SLPs, and into Vietnamese by a professional translator and facilitated by one author (B.
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5 204 P.) who is a practising SLP in the country, further piloted with three SLPs. Minor adaptations
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7 205 were required during the translation process. Most notably, the term used to refer to the
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9 206 profession changed depending on the term most used in the country. Feedback from the expert
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11 207 reviews and pilot testing guided the team to refine the survey content, for a total of 60 questions
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13 208 (See Supplementary Materials 1). A Qualtrics questionnaire was created in the four languages,
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15 209 with an estimated time for completion of approximately 30-40 minutes. Each survey question
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17 210 was marked as mandatory to avoid incomplete submissions. The survey contained Yes/No
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19 211 questions and questions on a Likert scale and comprised six sections: A. Demographic data
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21 212 (n=10); B. General knowledge and ability about the DLD in terms of existing resources and
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23 213 practices around DLD (n=6 yes/no questions); C. SLPs' current practices with multicultural
24
25 214 and multilingual patients (n=9 questions on a Likert scale); D. SLP's confidence with
26
27 215 multilingual and multicultural patients (n=2 questions on a Likert scale); E. perceived factors
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29 216 (n=8 questions on a Likert scale) and challenges (n=19 questions on a Likert scale) working
30
31 217 with multicultural and multilingual patients, and F. suggested future improvements with
32
33 218 respect to multilingualism in SLP (n=6 questions on a Likert scale). Questions in section B had
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35 219 the option of writing text to specify which resources they knew about/were using. Section D of
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37 220 the survey was only directed towards those who had multilingual patients in their active
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39 221 caseload, as was specified in the question.
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49 223 **Data collection procedure**

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51 224 Snowball sampling was applied. A call for participants was circulated through online posters
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53 225 via speech-language associations in Malaysia, Indonesia, and Vietnam, as this is the most cost-
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55 226 saving and less time-consuming method to gather participants, as SLPs voluntarily choose to
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57 227 join the associations after graduating. The posters were advertised on these associations' social
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228 media and sent by email to association members, as well as included in monthly newsletters.
229 After completing an online informed consent, participants were directed to a Qualtrics link
230 where they could respond to the survey in their chosen language (English, Malay, Vietnamese,
231 Indonesian). No time limit was imposed on the participants. Participants received a small token
232 as honorarium for their time in completing the survey. The study was conducted between
233 December 2021 and May 2022. Ethical approval was granted by the National University of
234 Malaysia (Reference code: JEP-2017-509).

235 **Data Analysis**

236 The outputs of the Qualtrics questionnaires were adapted to the English version of the survey
237 by one author (G.S.) and transferred into an excel spreadsheet, and open-ended questions were
238 translated by the same author with the help of machine translation and checked by the native
239 speakers of Malay and Vietnamese among the authors. For each closed question, answers were
240 coded to a unified numeric system. Descriptive statistics were run to collect information on the
241 number of respondents for each possible answer and the percentage over the total number for
242 each country and for the overall total.

243 Inferential statistics including Mann-Whitney U tests, Pearson Chi-squares and
244 Spearman correlations were undertaken in SPSS Version 26 (IBM, 2022) using 9 of the
245 demographic data collected for all participants (gender, country of practice, age, highest level
246 of qualification, whether they were monolingual/bilingual/multilingual, number of languages
247 spoken on the job, years of experience, how remote their area of work was, whether they
248 worked in the private or public sector and whether they had received specialised training for
249 supporting multilingual clients). Similar answers to open ended questions were grouped
250 together.

251 **Results**

252 **Participants**

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3 253 A total of 110 SLPs took part in the survey (44 from Malaysia, 33 from Vietnam, 33 from
4
5 254 Indonesia). Participant demographic details are presented in Table 1. The majority of
6
7 255 respondents were female and younger than 40 years old. Malay and Vietnamese respondents
8
9 256 most frequently held a bachelor's or master's degree, whereas Indonesian respondents most
10
11 257 frequently held a certification or a bachelor's degree. Most respondents had worked as SLPs
12
13 258 for 15 years or less, working in a hospital, rehabilitation centre, or other settings mostly with
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15 259 pre-school and primary school children. While Vietnamese SLPs mostly worked speaking only
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17 260 one language and considered themselves monolingual, over 60% of Indonesian and Malay
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19 261 SLPs used 2 or 3 languages on the job and considered themselves bi-multilingual.
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26 263 [INSERT TABLE 1 ABOUT HERE]
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31 265 **SLPs' knowledge and ability around existing resources for assessing and treating clients** 32 33 266 **with DLD** 34

35 267 This section was composed of six yes/no questions exploring awareness and use of existing
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37 268 protocols and standardised tests for diagnosing and providing intervention for children with
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39 269 DLD, as well as training for culturally responsive practice. Results are reported in Figure 1.
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44 271 [INSERT FIGURE 1 ABOUT HERE]
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49 273 When asked about resources for DLD, around 30% of Indonesian and Malay and 45%
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51 274 of Vietnamese participants declared they were not aware of existing protocols, and around 20%
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53 275 of Indonesian and Malay and 70% of Vietnamese participants said that they were not aware of
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55 276 existing standardised tests. Consequently, around 30% of Indonesian and 60% of Malay and
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57 277 Vietnamese participants do not make use of standardised tests. Malay SLPs predominantly use
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3 278 self-created tests instead. About half of the participants declared they had received specialised
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5 279 training for culturally responsive practice, while the other half had not.

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8 280 Participants could optionally write which improvements were needed with available
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10 281 diagnostic methods. Suggestions by Malay SLPs related to a need for locally based normative
11
12 282 data, as well as normative data that are valid and reliable for a multilingual population.
13
14 283 Indonesian SLPs often reported the lack of standardised measures specific to the Indonesian
15
16 284 language. Vietnamese SLPs as well as Malay and Indonesian SLPs suggested the need for tools
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18 285 that are appropriate to the culture (and religion) of the country.

19
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21 286 Awareness of existing standardised tests was predicted by several demographic factors.
22
23 287 Country of origin ($F=24.160, p=.000$, was a predictive factor, with Vietnamese participants the
24
25 288 most likely to not being aware); speakers of more than one language both in their personal life
26
27 289 and at work were more likely to be aware (multilingual status of the participant in their personal
28
29 290 lives: $F=16.536, p=.000$, at work $U=872.00, p=.001$). Place of work in terms of remoteness
30
31 291 from the inner city ($U = 917.5, p=.001$) and of sector ($F = 14.882, p=.005$) were also significant
32
33 292 factors, with workers from private sectors and in inner cities more likely to not be aware.

34
35 293 Use of standardised tests in their practise was also influenced by country of origin ($F=$
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37 294 $8.897, p=.012$), with Vietnamese employing the standardised assessments more frequently, and
38
39 295 remoteness ($U = 1185.00, p=.026$), but not the overall number of languages of the SLPs. The
40
41 296 demographic factor that was most significant across questions was the country of the
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43 297 participant, followed by the number of languages spoken at work and remoteness from the
44
45 298 inner city. All inferential statistics for all questions in this section are reported in Table 1 of the
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47 299 Supplementary Materials 2.

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56 301 **Current practices in SLPs with children with DLD**

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3 302 Participants were asked to react to statements on their confidence in assessing both societal
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5 303 language-speaking children and multilingual children on 5-point Likert scales. Figure 2 gives
6
7 304 a visual representation of the most relevant items. The full list can be found in the
8
9
10 305 Supplementary Materials 2, Table 2. Overall, over 80% of Malay and Indonesian participants
11
12 306 either agreed/agreed strongly that they were competent and comfortable in assessing
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14 307 multilingual clients or clients with a diverse cultural background, or they were neutral,
15
16 308 compared to around 60% of Vietnamese participants. Consistently, an overwhelming
17
18 309 preference for assessing and treating clients from their own culture (around 90%) and
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20 310 monolingual clients (around 70%) was expressed by most Vietnamese SLPs, but not Malay
21
22 311 and Indonesian SLPs. Crucially, over 90% of Vietnamese participants declared they preferred
23
24 312 to work alongside more experienced professionals on the subject of multilingualism, a
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26 313 sentiment that is not shared by the majority Indonesian SLPs, who are mostly neutral, and the
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28 314 majority of Malay SLPs, who are mostly in disagreement.
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35 316 [INSERT FIGURE 2 ABOUT HERE]
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39 318 **Confidence in working with multicultural and multilingual clients**

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42 319 Next, participants were asked how confident they felt in their skill set when working with
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44 320 multicultural and multilingual clients. Most SLPs declared being somewhat confident to
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46 321 confident in working with culturally and linguistically diverse clients, but only Vietnamese
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48 322 SLPs showed a lack of confidence particularly when dealing with multilingualism (Table 2).
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53 324 [INSERT TABLE 2 ABOUT HERE]
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57 326 **Factors influencing service delivery and challenges in working with multilingual clients**

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3 327 Participants were asked to indicate whether a total of 8 socioeconomic factors might hinder
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5 328 access to SLP services in their country. These ranged from social position to place of residence
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8 329 to cultural differences (see Table 3). Results revealed a consistent sentiment across all three
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10 330 countries, with all three indicating all factors but one as having an impact on access to SLP
11
12 331 services. Regional/geographical variations were particularly relevant only for Malay SLPs.
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14 332 Next, participants with multicultural and multilingual patients in their active caseload were
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16 333 asked to estimate how frequently they encountered a series of potential challenges in their
17
18 334 practice with this population (full list of items and answers provided in Supplementary
19
20 335 Materials 2, Table 3). These challenges included lack of materials (Figure 3a), lack of specific
21
22 336 knowledge useful to assess children from a multilingual background (Figure 3b), or difficulties
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24 337 in communication in the child's first language. Participants report experiencing most of the
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26 338 challenges at least sometimes.
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33 340 [INSERT TABLE 3 ABOUT HERE]

34 341 [INSERT FIGURE 3A ABOUT HERE]

35 342 [INSERT FIGURE 3B ABOUT HERE]

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44 344 "Country" was the most significant factor in determining how frequently a challenge
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46 345 was encountered (significant in 11 out of 18 questions. See Supplementary Materials 2, table
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48 346 4 for the full inferential statistics). All challenges were also analysed together, and "country"
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50 347 was the only significant factor ($H(2)= 7.622, p=.022$). For instance, Malay and Vietnamese
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52 348 SLPs reported encountering significantly more frequently a lack of treatment materials in other
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54 349 languages ($H(2)= 11.338, p=.003$), and Vietnamese SLPs reported encountering more
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3 350 challenges in the lack of general knowledge of bilingualism ($H(2)=18.976, p=.000$) and in the
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5 351 lack of methods to separate a language difference from a DLD ($H(2) = 7.902, p= .019$).

6
7 352 The second most significant factor influencing the perception of challenges was the
8
9 353 linguistic background of the participants, namely whether they considered themselves mono-,
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11 354 bi-, or multilingual. Monolingual participants declared facing challenges deriving from not
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13 355 speaking the first language of the client ($r= -.358, p=.001$) and from lack of general knowledge
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15 356 of the phenomena linked to bilingualism ($r= -.356, p=.001$) more frequently. Conversely, the
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17 357 challenge that was influenced by demographic factors the most was lack of general knowledge
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19 358 of bilingualism (influenced by country, qualification, linguistic background, hours worked per
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21 359 week, languages spoken at work).

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25 26 27 28 361 **Suggestions to improve SLP practice in SE Asia**

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30 362 Participants were asked about the usefulness of a list of suggested improvements to SLP
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32 363 programs, particularly referring to cultural and linguistic differences (Table 5 in Supplementary
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34 364 Materials 2). These included a course in cultural diversity as part of SLP programmes, and a
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36 365 course on bilingual and multicultural issues. All participants agreed or strongly agreed on the
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38 366 usefulness of all proposed improvements. Inferential statistics revealed that country of origin
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40 367 was the most significant predictor, followed by sector and remoteness (Supplementary
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42 368 Materials 2, Table 6).

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46 47 48 49 370 **Discussion**

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51 371 This study presents data regarding current service delivery practices and challenges faced by
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53 372 SLPs across three Southeast Asian countries (Malaysia, Indonesia, and Vietnam), with a
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55 373 particular focus on working with multilingual children and DLD. One hundred and ten SLPs
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57 374 with different levels of experience and coming from a variety of practice settings responded to
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3 375 this survey. In line with current trends of SLP practice in Western countries, respondents were
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5 376 mainly from the urban/inner city areas.

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8 377 Results revealed that overall, SLPs feel that both socioeconomic and resource-based challenges
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10 378 to the provision of care exist across the board. Income level and residence (whether rural or
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12 379 urban) of the family and cost for parents were the most influential socioeconomic factors for
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14 380 participants from all countries, in line with well-known disadvantages in access to care in lower
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16 381 income populations which are constantly being documented across the world (for the US:
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18 382 Fuller-Rowell et al., 2018; Senn et al., 2023).

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21 383 More specifically on the practices of the SLPs, the study revealed that a large portion of
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23 384 participants, particularly from Malaysia and Vietnam, often forego the use of standardised tests
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25 385 for DLD. Open-ended comments revealed that this may stem from a need for tests in local
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27 386 languages (particularly expressed by Vietnamese SLPs), and for tests that are reliable for
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29 387 multilingual children (as expressed by Malay SLPs in particular). Translations and adaptations
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31 388 of Western tests in lieu of standardised assessments in local languages is a known issue for
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33 389 languages that are under-represented in research, with several critical consequences: firstly,
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35 390 these adaptations often remain unpublished and/or not normed on the local population, thus
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37 391 limiting the validity and reliability of results (Ivanova & Hallowell, 2013). Secondly, direct
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39 392 translations are rarely ideal given the different structural properties of languages (Paradis &
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41 393 Libben, 1987) and, for similar reasons, adaptations must follow specific guidelines to be
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43 394 considered appropriate (van De Vijver, 2016). In multilingual societies like Malaysia, the use
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45 395 of translated or adapted materials is especially problematic given the heterogeneous profile of
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47 396 multilingual children compared to the often exclusively monolingual Western children these
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49 397 assessments are typically normed on (Chu et al. 2019b; Ortiz & Cehelyk, 2023).

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52 398 The main focus of the survey was to better understand SLP practice with regard to
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54 399 multilingualism and DLD. In keeping with numerous previous international studies (Bloder et
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3 400 al., 2021; Narayan & Ramsdell, 2022; Newburi et al., 2020), SLPs working with multilingual
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5 401 children across the three countries frequently encountered resource-based challenges which
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7 402 included lack of appropriate assessment instruments, treatment materials in other languages
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9 403 and interpreters/translators, as well as training-based challenges which included a lack of
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11 404 general knowledge of bilingualism and of the developmental norms of the child's first language
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13 405 and, crucially, a lack of methods to separate DLD from typical bilingual development. The
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15 406 study also revealed that these challenges were perceived to different degrees across the three
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17 407 countries. In fact, both country of origin and number of languages spoken by the participants
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19 408 were determining factors in how often these were encountered. Indonesian participants were
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21 409 struggling the least with access to appropriate assessment instruments, while Vietnamese
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23 410 participants were struggling the most with specific knowledge around bilingualism as well as
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25 411 access to human resources (i.e., translators and interpreters). Crucially, Vietnamese SLPs also
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27 412 reported often lacking the confidence to work with children of different linguistic backgrounds
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29 413 and a preference for working with monolingual clients as well as alongside professionals who
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31 414 were knowledgeable on the topic of multilingualism. In comparison, Malaysian participants
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33 415 also reported often encountering issues with the necessary tools, but this did not influence their
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35 416 confidence in dealing with their multilingual caseloads. In fact, they reported often creating
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37 417 their own protocols for this purpose.

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39 418 Among the three countries featured in this study, Vietnam is the one country where SLPs
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41 419 mostly identified as monolinguals and mostly worked with the societal language. In fact,
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43 420 monolingual SLPs have been shown to heavily rely on the standardised dominant language,
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45 421 and to prefer working with monolingual speakers of that language (Clyne, 2008; Clark et al.,
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47 422 2020). Given this context, a strong training and support system would be required particularly
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49 423 on the topic of culturally and linguistically responsive practice, but the SLP profession in the
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51 424 country is in its early stages and no relevant government policies exist (Van Cong et. al, 2015).
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3 425 Malaysian and Indonesian SLPs on the other hand are largely multilingual and work with
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5 426 multiple languages, therefore feeling mostly confident when working with culturally and
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7 427 linguistically diverse clients. Participants from both countries encountered several challenges,
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9 428 nonetheless. Among these, access to resources was perceived as more problematic in Malaysia
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11 429 than Indonesia. Since little is known of the profession in Indonesia, it is hard to make
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13 430 assumptions on why this might be the case, but it is interesting to notice that, in the absence of
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15 431 these tools, Malaysian SLPs were the ones to mostly resort to self-made tools.
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19 432 The limited use of standardised assessments reported across the three countries, as well
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21 433 as the use of self-made tools, is problematic for reliability and validity of the assessments. It is
22
23 434 recognised that the use of standardised tests is often not appropriate for children from cultural
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25 435 and linguistic backgrounds that differ from the target population of the text (see Verdon, 2015).
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27 436 The assessment of DLD in multilingual clients generally benefits a more systematic use of
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29 437 resources including the development of a language profile to understand children's unique
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31 438 language development environment and dynamic assessment to differentially diagnose
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33 439 between genuine language difficulties and a lack of exposure to the target language (Margetson
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35 440 et al., 2022). Consequently, these findings indicate the need to create the appropriate training
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37 441 and resources for the adoption of evidence-based frameworks for service delivery, particularly
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39 442 in relation to multilingualism, in the three Southeast Asian countries. Participants from all
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41 443 countries agreed there is a need to implement program integrations and specific training on
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43 444 multilingualism and DLD in the future. Providing SLPs in Southeast Asia with training and
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45 445 access to evidence-based resources for culturally responsive multilingual assessment is
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47 446 essential to minimise bias in language assessment and to enhance outcomes for multilingual
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49 447 children.
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55 56 448 **Limitations and Future Directions** 57 449

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3 450 The main focus of this study was on standardised testing. However, standardised testing should
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5 451 not be used in isolation and instead, several methods should be used for diagnostic assessment
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7 452 (Bishop, 2017). Future studies are needed to investigate to what extent other methods of
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9 453 assessment are used in these countries. One of the study's research questions pertained to the
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11 454 challenges faced by SLPs in their profession when working with multilingualism. As a
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13 455 limitation, the reasons as to why certain challenges were perceived as more or less severe were
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15 456 not explored in detail. A qualitative research approach should be considered for future research
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17 457 to better explore practice-based reasons and viewpoints of SLPs in future studies. This would
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19 458 allow a discussion and positive appraisal of multilingualism that could also include each
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21 459 countries' local solutions, which is missing from the present work. Moreover, the focus of the
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23 460 study on DLD was not always central in survey questions. Most notably, we did not ask whether
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25 461 participants had received specific training on DLD.

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27 462 A further limitation of this study regards terminology: firstly, Firstly, the specific
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29 463 terminology used in the survey was not provided to participants. In future research, this should
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31 464 be done in order to avoid any miscommunication when discussing protocols, frameworks, and
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33 465 assessments. For example, the difference in the proficiency of bilingualism for professional
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35 466 versus personal purposes should have been clarified. Moreover, more attention could have been
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37 467 devoted to avoiding translation-related differences in terminology. Finally, some survey
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39 468 questions were double-barrelled and should have been separated.

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41 469 To provide a more complete picture of the differences among and within countries, future
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43 470 studies should focus on gathering specific information on the available resources across
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45 471 countries in terms of both tools (standardised assessments, treatments, etc.) and training,
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47 472 particularly related to multilingualism. Pertaining to this last point, it would be useful to look
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49 473 at the speech-language pathology programmes available across individual countries to see how
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51 474 they differ within and between countries on the topics of multilingualism and cultural practice.
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Conclusion

477 This survey is the first to provide insights into the current state of practice for SLPs working
478 in Malaysia, Indonesia, and Vietnam with a focus on multilingualism and DLD. The findings
479 varied between countries, with SLPs from Malaysia and Indonesia expressing higher levels of
480 confidence for supporting multilingual clients. Approximately half of the SLPs had received
481 specialised training for supporting culturally diverse and multilingual clients (Indonesia=
482 18/33, Malaysia= 25/44, Vietnam= 14/33). Survey findings suggested the need for specific
483 training targeted to working with multilingualism and DLD. The majority of participants
484 highlighted the need for speech-language pathology programmes offering courses that focus
485 on working with multilingual clients in their country. Further training for culturally responsive
486 practice with multilingual clients and DLD is crucial to ensure the risk of misclassification of
487 DLD in both monolingual and multilingual children is reduced, and to provide children with
488 DLD accurate and culturally responsive assessment and interventions. The desire of SLPs in
489 Southeast Asia to engage in culturally responsive practice is an encouraging finding. To
490 support this goal, the development of further assessment and intervention resources and
491 language specific evidence bases for the languages spoken in southeast Asia is crucial,
492 particularly in countries where the speech-language pathology profession is still emerging.

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499 Disclosure statement

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3 500 No potential conflict of interest was reported by the author(s).
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5 501 **Data availability statement**

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8 502 The data that support the findings of this study are available from the corresponding author
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10 503 upon reasonable request.
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FIGURES

Figure 1. Knowledge of existing resources

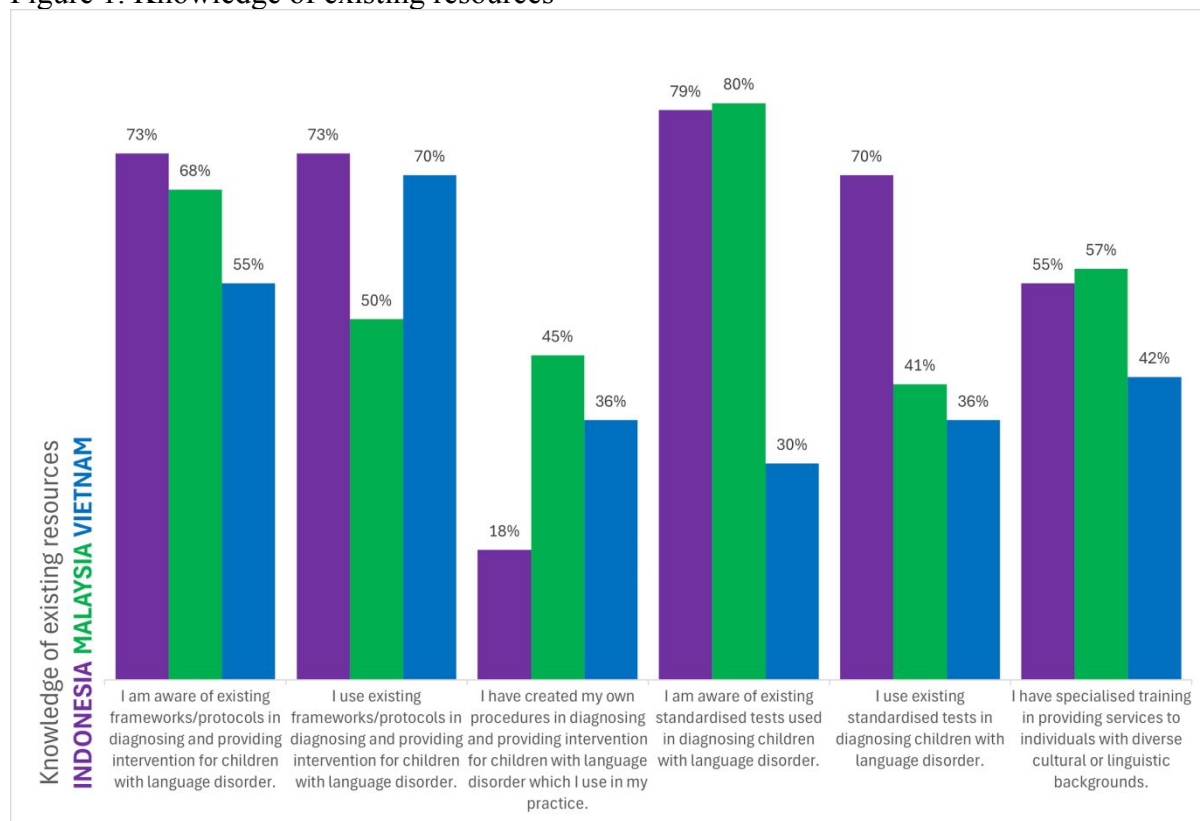


Figure 2. Practices with multilingual clients

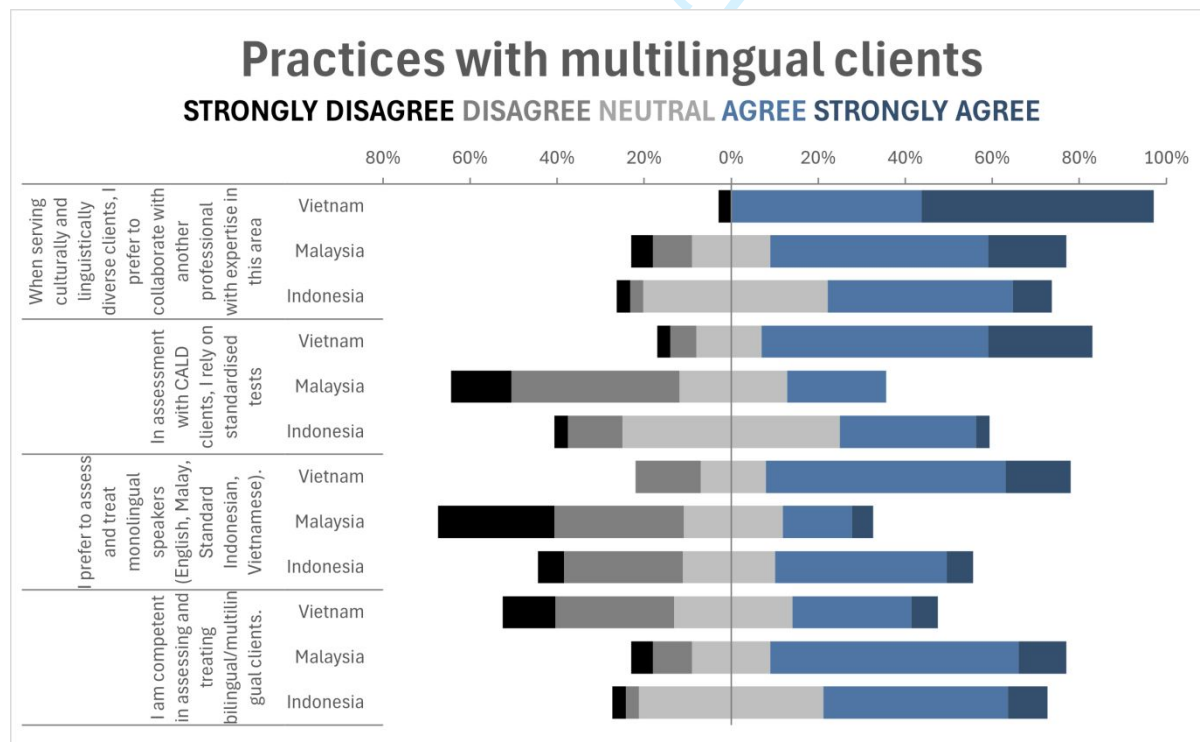


Figure 3a. How often SLPs encounter challenges with multilingual clients - materials.

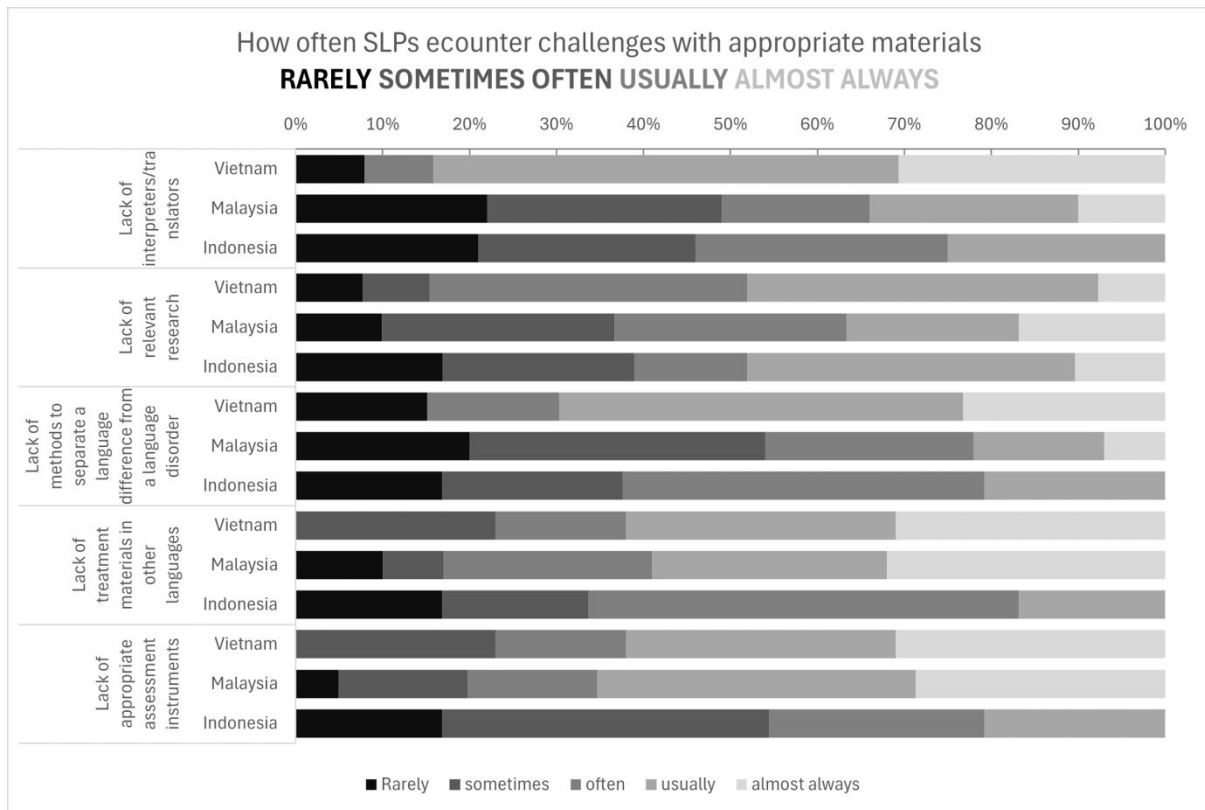


Figure 3b. How often SLPs encounter challenges with multilingual clients - knowledge.

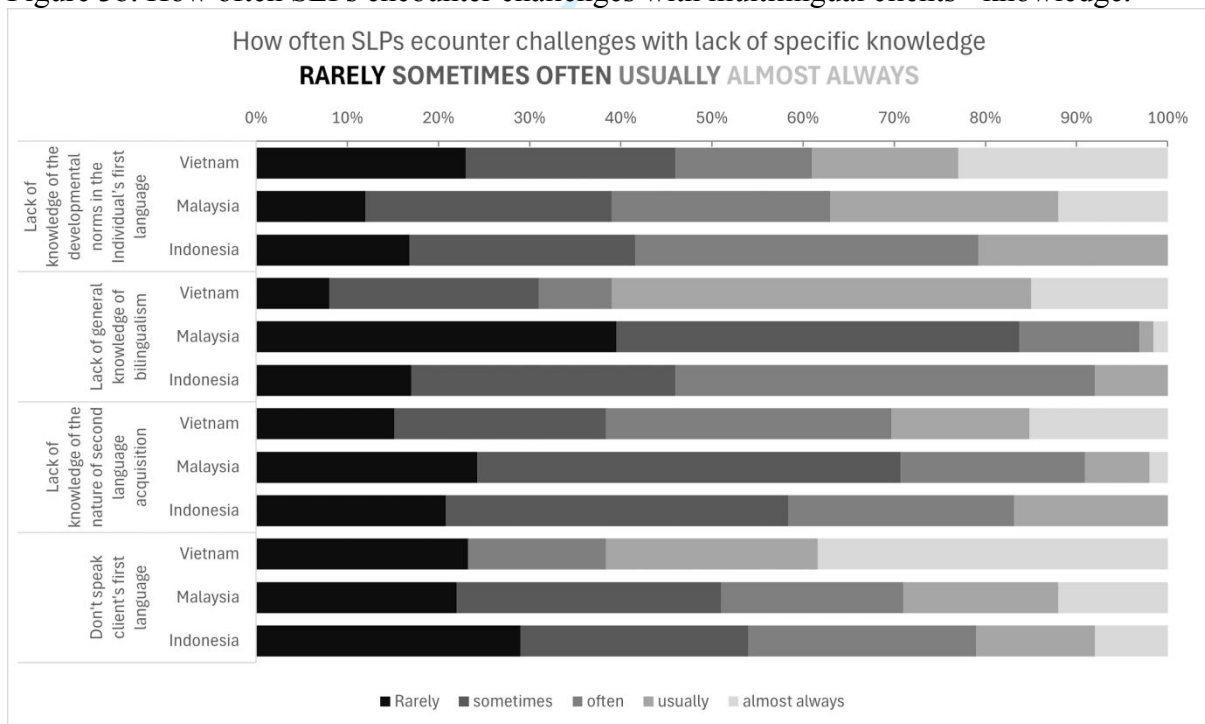


Table 1. Participant demographic characteristics.

Participant characteristics	Number of participants (%)			
	INDONESIA (n=33)	MALAYSIA (n=44)	VIETNAM (n=33)	TOTAL (n=110)
Age range				
20-29	10 (3%)	15 (34%)	12 (36%)	36 (33%)
30-39	17 (52%)	25 (57%)	16 (48%)	59 (54%)
40-49	5 (15%)	4 (9%)	4 (12%)	13 (12%)
50-59	1 (3%)	0 (0%)	1 (3%)	2 (2%)
60+	0	0	0	0
Sex				
Male	0	4 (9%)	1 (3%)	5 (4%)
Female	33 (100%)	40 (91%)	32 (97%)	106 (96%)
Mono/multilingual				
Monolingual	9 (27%)	2 (5%)	27 (82%)	38 (35%)
Bilingual	18 (55%)	14 (32%)	6 (18%)	38 (35%)
multilingual	6 (18%)	28 (64%)	0 (0%)	34 (31%)
Level of SLP education				
Certification*	22 (67%)	1 (2%)	9 (27%)	32 (29%)
bachelors	7 (21%)	31 (70%)	14 (42%)	52 (47%)
masters	4 (12%)	9 (20%)	6 (18%)	20 (18%)
PhD	0	3 (7%)	1 (3%)	4 (4%)
other	0	0	3 (9%)	2 (2%)
Years employed as SLP				
0-3	0 (0%)	12 (27%)	6 (18%)	18 (16%)
4-6	10 (3%)	13 (3%)	13 (39%)	36 (33%)
7-10	6 (18%)	11 (25%)	7 (21%)	24 (22%)
11-15	14 (42%)	5 (11%)	6 (18%)	25 (23%)
16+	3 (9%)	3 (7%)	1 (3%)	7 (6%)
Hours of paid work as SLP per week				
<20	5 (15%)	2 (5%)	3 (9%)	10 (10%)
20-30	11 (33%)	7 (16%)	10 (30%)	28 (25%)
>30	17 (52%)	35 (80%)	20 (60%)	72 (65%)
Geographical area of work**				
Inner city	2 (6%)	4 (9%)	23 (70%)	29 (26%)
Suburban	3 (9%)	8 (18%)	2 (6%)	13 (12%)
Urban	26 (79%)	32 (73%)	8 (24%)	66 (60%)

Rural	2 (6%)	0	0	2 (2%)
SLP work setting				
Private sector	4 (12%)	17 (39%)	19 (58%)	40 (36%)
Public sector - Education	3 (9%)	5 (11%)	5 (15%)	13 (12%)
Public sector - Health	22 (67%)	20 (45%)	4 (12%)	46 (42%)
Charity/social sector	3 (9%)	1 (2%)	1 (3%)	5 (4%)
Other	1 (3%)	1 (2%)	4 (12%)	6 (5%)
Age groups worked with (may be more than one)				
pre-school	31 (94%)	42 (95%)	29 (88%)	102 (93%)
Primary school	21 (64%)	33 (75%)	22 (67%)	76 (69%)
high school	9 (27%)	16 (36%)	8 (24%)	39 (35%)
18+	7 (21%)	11 (25%)	3 (9%)	21 (19%)
Number of languages spoken by you at work				
1	8 (24%)	4 (9%)	25 (76%)	37 (34%)
2	20 (60%)	13 (30%)	8 (24%)	41 (37%)
3	5 (15%)	16 (36%)	0	21 (19%)
4	0	9 (20%)	0	9 (8%)
5	0	2 (5%)	0	2 (2%)

*in some of the areas under investigation, SLP programmes in universities are still in their infancy, therefore several SLPs working in the field will have a certification instead.

**"inner city" = the central area of a city characterised by dense population, older infrastructure, and a concentration of commercial/industrial activities. "urban areas" = high-density regions with significant human-made structures, encompassing residential, commercial, and industrial zones. "suburban areas" = residential zones situated on the outskirts of cities, distinguished by lower population densities, single-family homes, and a quieter living environment.

Table 2. Confidence when working with multilingual clients. Total number of respondents: 91 (27 Indonesian, 36 Malay, 28 Vietnamese).

		Very confident <i>n</i> (%)	Somewhat confident <i>n</i> (%)	Not confident <i>n</i> (%)
How confident do you feel in your skill set in terms of working with diverse cultural groups.	Indonesia	11 (39)	13 (48)	3 (11)
	Malaysia	9 (25)	24 (67)	3 (8)
	Vietnam	8 (28)	12 (43)	8 (28)
	Total	28 (30)	51 (55)	14 (15)
How confident do you feel in your skill set in terms of working with diverse linguistic groups.	Indonesia	5 (18)	17 (63)	5 (18)
	Malaysia	4 (11)	26 (72)	6 (17)
	Vietnam	0 (0)	12 (42)	16 (57)
	Total	9 (1)	57 (61)	27 (29)

Table 3. Challenges in service delivery. 91 participants (27 Indonesian, 36 Malay, and 28 Vietnamese).

Indicate whether the following factors have an impact in children's access to SLP services in your country		Yes <i>n</i> (%)	Somewha t <i>n</i> (%)	No <i>n</i> (%)	Don't know <i>n</i> (%)
Urban/rural residence	Indonesia	16 (59)	6 (22)	2 (7)	2 (7)
	Malaysia	25 (69)	10 (28)	1 (3)	0 (0)
	Vietnam	21 (75)	5 (18)	2 (7)	0 (0)
	Total	62 (68)	21 (23)	5 (5)	2 (2)
Social position	Indonesia	15 (56)	8 (30)	4 (15)	0 (0)
	Malaysia	20 (56)	10 (28)	5 (14)	1 (3)
	Vietnam	13 (46)	10 (36)	5 (18)	0 (0)
	Total	48 (53)	28 (31)	14 (15)	1 (1)
Income level	Indonesia	19 (70)	7 (26)	1 (4)	0 (0)
	Malaysia	26 (72)	9 (25)	0 (0)	1 (3)
	Vietnam	21 (75)	5 (18)	2 (7)	0 (0)
	Total	66 (73)	21 (23)	3 (3)	1 (1)
Cost for parents	Indonesia	20 (74)	5 (19)	0 (0)	2 (7)
	Malaysia	25 (79)	10 (28)	1 (3)	0 (0)
	Vietnam	22 (79)	5 (18)	1 (4)	0 (0)
	Total	67 (74)	20 (22)	2 (2)	2 (2)
Linguistic/cultural community	Indonesia	12 (44)	8 (30)	4 (15)	3 (11)
	Malaysia	17 (47)	13 (36)	4 (11)	2 (6)
	Vietnam	14 (50)	10 (36)	4 (14)	0 (0)
	Total	43 (47)	31 (34)	12 (13)	5 (5)
Educational level of parents	Indonesia	18 (67)	6 (22)	2 (7)	1 (4)
	Malaysia	22 (61)	10 (28)	4 (11)	0 (0)
	Vietnam	17 (61)	8 (29)	3 (11)	0 (0)
	Total	57 (63)	25 (27)	9 (10)	1 (1)
Regional/geographical variations	Indonesia	10 (37)	12 (44)	3 (11)	2 (7)
	Malaysia	24 (67)	11 (31)	0 (0)	1 (3)
	Vietnam	9 (32)	17 (61)	3 (11)	0 (0)
	Total	43 (47)	40 (44)	6 (7)	3 (3)
Cultural differences (religion, cultural beliefs, ethnic/linguistic group etc.)	Indonesia	15 (56)	3 (11)	9 (33)	0 (0)
	Malaysia	24 (69)	5 (14)	7 (19)	0 (0)
	Vietnam	21 (75)	1 (4)	6 (21)	0 (0)
	Total	60 (66)	9 (10)	22 (24)	0 (0)

Supplementary Materials 1

Survey questions

A. DEMOGRAPHICS

(Q1) Gender (M/F)

(Q2) Age (20-29, 30-39, 40-49, 50-59, 60+)

(Q3) Level of professional education (certification, bachelor's degree, master's degree, PhD, other)

(Q4) Do you consider yourself (monolingual, bilingual, multilingual)

(Q5) I have been employed as a SLP/SL specialist/teacher/psychologist/special needs educator for (0-3 years, 4-6 years, 7-10 years, 11-15 years, 16+ years)

(Q6) I practice as an SLP/SL Specialist/teacher/psychologist/special needs educator (<20 hours per week, 20-30 hours per week, > 30 hours per week)

(Q7) The area in which I work is best described as (inner city, suburban, urban, rural)

(Q8) How many languages do you speak in your professional role? (1-5)

(Q9) What age group(s) of children do you work with? (may be more than one) (pre-school, primary school, high school, 18+)

(Q10) Which sectors do you work in (private sector, public sector – education, public sector – health, charity/social sector, other)

(Q11) I have specialised training in providing services to individuals with diverse cultural or linguistic backgrounds (yes/no)

B. KNOWLEDGE AND ABILITY

(Q12) I am aware of existing frameworks/protocols in diagnosing and providing intervention for children with language impairment (yes/no)

1
2
3 (Q13) I use of existing frameworks/protocols in diagnosing and providing intervention for
4
5 children with language impairment (yes/no + Text)
6

7
8 (Q14) I have created my own procedures in diagnosing and providing intervention for
9
10 children with language impairment which I use in my practice (yes/no)
11

12 (Q15) I am aware of existing standardized tests used in diagnosing children with language
13
14 impairment (yes/no)
15

16 (Q16) I use existing standardized tests in diagnosing children with language impairment
17
18 (yes/no + Text)
19

20 (Q17) What improvements would you like to see in these available diagnostic methods?
21
22 (Text)
23

24 C. CURRENT PRACTICES

25
26 React to this statement (strongly agree, agree, no opinion, disagree, strongly disagree):
27

28 (Q17) I am competent in assessing and treating bilingual/multilingual clients.
29

30 (Q18) Compared to other speech-language specialists, I am very skilled in clinical
31
32 interactions with culturally & linguistically diverse clients.
33

34 (Q19) I am comfortable assessing and treating an individual from a cultural or racial
35
36 background other than my own.
37

38 (Q20) I have sufficient training to be able to adequately serve the clients on my caseload.
39

40 (Q21) In assessment with mainstream populations, I rely on the results of standardized test.
41

42 (Q22) In assessment with culturally & linguistically diverse clients, I rely on the results of
43
44 standardized tests.
45

46 (Q23) I prefer to assess and treat clients from my own culture.
47

48 (Q24) I prefer to assess and treat monolingual speakers (English, Malay, Standard
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50 Indonesian, Vietnamese).
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3 (Q25) When serving culturally and linguistically diverse clients, I prefer to collaborate with
4
5 another professional with expertise in this area.
6

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8 D. CONFIDENCE
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10 (Q26) How confident do you feel in your skill set in terms of working with the range of
11
12 cultural and linguistic groups in your practice? (Very confident, somewhat confident, not
13
14 confident): Diverse cultural groups
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16

17 (Q27) How confident do you feel in your skill set in terms of working with the range of
18
19 cultural and linguistic groups in your practice? (Very confident, somewhat confident, not
20
21 confident): Diverse linguistic groups
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23

24 E. FACTORS AND CHALLENGES
25

26 Indicate the frequency with which you encounter the challenges indicated (rarely, sometimes,
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28 often, usually, almost always)
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30 (Q28) Lack of family involvement.
31

32 (Q29) Lack of information available to me.
33

34 (Q30) Lack of appropriate assessment instruments.
35

36 (Q31) Lack of treatment materials in other languages.
37

38 (Q32) Don't speak the language(s) of the client.
39

40 (Q33) Lack of knowledge of individual's cultural characteristics.
41

42 (Q34) Lack of knowledge of the nature of second language acquisition by children.
43

44 (Q35) Lack of general knowledge of bilingualism.
45

46 (Q36) Lack of other professionals who speak individual's languages (e.g. resource specialists,
47
48 psychologists).
49

50 (Q37) Lack of other professionals who are knowledgeable in working with individuals
51
52 outside of their culture.
53

54 (Q38) Lack of methods to separate a language difference from DLD.
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3 (Q39) Lack of interpreters/translators.
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5 (Q40) Lack of knowledge of the developmental norms in the individual's first language.
6

7 (Q41) Lack of relevant research.
8

9 (Q42) Limited family resources (e.g., transportation, insurance).
10

11 (Q43) Lack of knowledge regarding appropriate procedures for treating individuals from non-
12 mainstream cultural groups
13

14 (Q44) Lack of knowledge regarding appropriate procedures for treating individuals from non-
15 mainstream cultural groups
16

17 (Q45) Lack of information regarding low family/client literacy (in any language)
18

19 (Q46) Lack of knowledge of the developmental norms in the individual's first language
20

21 Indicate whether the following factors have an impact on children's access to services in your
22 country (somewhat, yes, no, don't know)
23

24 (Q47) Urban/rural residence
25

26 (Q48) Social position
27

28 (Q49) Income level
29

30 (Q50) Cost for parents
31

32 (Q51) Linguistic/cultural community
33

34 (Q52) Educational level of parents
35

36 (Q53) Regional/geographical variations
37

38 (Q54) cultural differences (such as religious, cultural beliefs, ethnic/linguistic group etc.)
39

40 F. FUTURE IMPROVEMENTS 41

42 React to this statement (strongly agree, agree, no opinion, disagree, strongly disagree)
43

44 (Q55) A course in cultural and linguistic diversity should be required for graduate students in
45 Speech-Language Pathology programs
46

47 (Q56) I could benefit from post-graduate training in cultural/linguistic diversity
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3 (Q57) Improving services to the culturally/linguistically diverse populations is an appropriate
4
5 initiative for the speech language associations in my country
6

7
8 (Q58) Bilingual and multicultural issues should be considered specialty areas of clinical
9
10 practice
11

12 (Q59) Bilingual and multicultural issues should be an integrated part of graduate programs in
13
14 speech and language pathology
15

16
17 (Q60) It is acceptable for speech-language specialists who speak a language to provide
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19 clinical services to clients who are not native speakers of that language. (A Malay SLP
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21 providing therapy in Malay to an Indian client)
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4 **Supplementary Materials 2**
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6 **Table 1.** *SLPs' knowledge of existing resources for supporting children with DLD inferential*
7 *statistics.*
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For Peer Review Only

	Awareness of existing frameworks/protocols	Use of existing frameworks/protocols	Use of own procedures	Awareness of existing standardised tests	Use of existing standardised tests
Gender	F(1, 110) = 2.191, p=.139	F(1, 110) = .267, p=.605	F(1, 110) = .438, p=.508	F(1, 110) = 2.280, p=.131	F(1,110) = 4.464, p=.035
Country	F(2, 110) = 2.654, p=.265	F(2, 110) = 5.146, p=.076	F(2, 110) = 6.272, p=.043	F(2,110) = 24.160, p=.000	F(2, 110) = 8.897, p=.012
Age	U = 1234.5, z= -.930, p=.352	U = 1271.0, z= -.983, p=.325	U = 1247.5, z=-.40, p=.401	U=1317.0, z= -.468, p=.640	U=1360.5, z= -.995, p=.320
Qualification	F(4, 110) = 1.605, p=.808	F(4, 110) = 4.809, p=.308	F(4, 110) = 6.782, p=.148	F(4, 110)= 8.437, p=.077	F(4, 110) = 8.714, p=.069
Languages	F(2, 110) = 1.477, p=.478	F(2, 110) = 5.224, p=.073	F(2, 110) = .957, p=.620	F(2, 110)=16.536, p=.000	F(2,110) = 3.550, p=.986
Remoteness	U = 1144, z=-1.611, p=.107	U= 1394.5, z= -.141, p=.888	U = 1244.0, z= -.892, p=.373	U = 917.5, z= -3.338, p=.001	U = 1185.00, z= -2.228, p=.026
Years of experience	U = 1193.5, z= -1.132, p=.257	U=1267.5, z= -.938, p=.348	U=1351.5, z=-.107, p=.915	U = 1248.00, z= -.881, p=.379	U = 1207.50, z= -1.871, p=.061
Languages spoken at work	U = 1341.5, z=-.175, p=.861	U = 1094.5, z= -2.082, p=.037	U=1334.0, z=-.225, p=.822	U=872.00, z= -3.370, p=.001	U = 1397.00, z= -.715, p=.475
Specialised training for multilingual clients	F (1, 110) = 3.543, p=.060	F (1, 110) = 2.807, p=.094	F (1,110) = .276, p=.599	F(1, 110)= 1.639, p=.201	F(1, 110) = 1.1024, p=.177
Sector	F (4, 110) = 4.556, p=.336	F(4, 110) = 3.817,	F(4, 110) = 6.807,	F(4, 110) = 14.882,	F(4,110) = 7.295,

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p=.431 p=.146 **p=.005** p=.121

*bolded figures indicate a statistically significant result

For Peer Review Only

Table 2. Current practices when serving multilingual clients

React to this statement		Strongly agree <i>n</i> (%)	Agree <i>n</i> (%)	Neutral <i>n</i> (%)	Disagree <i>n</i> (%)	Strongly disagree <i>n</i> (%)
I am competent in assessing and treating bilingual/multilingual clients.	Indonesia	3 (9)	14 (42)	14 (42)	1 (3)	1 (3)
	Malaysia	5 (11)	25 (57)	8 (18)	4 (9)	2 (5)
	Vietnam	2 (6)	9 (27)	9 (27)	9 (27)	4 (12)
	Total	7 (6)	48 (44)	31 (28)	14 (13)	7 (6)
Compared to other SLPs, I am very skilled in clinical interactions with CLAD clients.	Indonesia	1 (3)	13 (39)	14 (42)	3 (9)	2 (6)
	Malaysia	2 (5)	24 (55)	13 (30)	4 (9)	1 (2)
	Vietnam	4 (12)	12 (36)	5 (15)	11 (33)	1 (3)
	Total	7 (6)	49 (45)	32 (28)	18 (16)	4 (4)
I am comfortable assessing and treating an individual from a cultural or racial background other than my own.	Indonesia	1 (3)	14 (42)	13 (39)	4 (12)	1 (3)
	Malaysia	11 (25)	19 (43)	9 (20)	4 (9)	1 (2)
	Vietnam	5 (15)	9 (27)	6 (18)	10 (30)	3 (9)
	Total	17 (15)	42 (38)	28 (25)	18 (16)	5 (5)
I have sufficient training to be able to adequately serve the clients on my caseload.	Indonesia	4 (12)	13 (39)	9 (27)	4 (12)	3 (9)
	Malaysia	4 (9)	25 (57)	9 (20)	5 (11)	1 (2)
	Vietnam	8 (24)	21 (64)	3 (9)	1 (3)	0 (0)
	Total	16 (15)	59 (54)	21 (19)	10 (9)	4 (4)
In assessment with mainstream populations, I rely on the results of standardised test.	Indonesia	1 (3)	10 (30)	16 (48)	4 (12)	2 (6)
	Malaysia	1 (2)	13 (13)	9 (2)	17 (39)	4 (9)
	Vietnam	10 (30)	18 (55)	4 (12)	0 (0)	1 (3)
	Total	12 (11)	41 (37)	29 (26)	21 (19)	7 (6)
In assessment with multilingual clients, I rely on the results of standardised tests.	Indonesia	0 (0)	12 (36)	16 (48)	4 (12)	1 (3)
	Malaysia	0 (0)	10 (23)	11 (25)	17 (39)	6 (14)
	Vietnam	8 (24)	17 (52)	5 (15)	2 (6)	1 (3)
	Total	8 (7)	39 (35)	32 (29)	23 (21)	8 (7)

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3	I prefer to assess and treat	Indonesia	1 (3)	12 (36)	11 (33)	7 (21)	2 (6)
4	clients from my own	Malaysia	0 (0)	9 (20)	13 (30)	12 (27)	10 (23)
5	culture.	Vietnam	12 (36)	18 (55)	2 (6)	1 (3)	0 (0)
6		Total	13 (12)	39 (35)	26 (24)	20 (18)	12 (11)
7							
8	I prefer to assess and treat	Indonesia	2 (6)	13 (39)	7 (21)	9 (27)	2 (6)
9	monolingual speakers	Malaysia	2 (5)	7 (16)	10 (23)	13 (30)	12 (27)
10	(English, Malay, Standard	Vietnam	5 (15)	18 (55)	5 (15)	5 (15)	0 (0)
11	Indonesian, Vietnamese).	Total	9 (8)	38 (35)	22 (20)	27 (25)	14 (13)
12							
13	When serving multilingual	Indonesia	3 (9)	14 (42)	14 (42)	1 (3)	1 (3)
14	clients, I prefer to	Malaysia	8 (18)	22 (50)	8 (18)	4 (9)	2 (5)
15	collaborate with another	Vietnam	18 (55)	15 (45)	0 (0)	0 (0)	0 (0)
16	professional with expertise	Total	29 (26)	51 (46)	22 (20)	5 (5)	3 (3)
17	in this area.						
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Table 3. Challenges working with culturally/linguistically diverse clients (Indonesian =24, Malay=41, Vietnamese=13, Total=78)

Indicate the frequency with which you encounter the following challenges		Almost always <i>n</i> (%)	Usually <i>n</i> (%)	Often <i>n</i> (%)	Sometime <i>s</i> <i>n</i> (%)	Rarely <i>n</i> (%)
Lack of family involvement	Indonesia	2 (8)	7 (29)	7 (29)	7 (29)	1 (4)
	Malaysia	1 (2)	6 (15)	7 (17)	19 (46)	8 (20)
	Vietnam	1 (8)	3 (23)	4 (31)	2 (15)	3 (23)
Lack of information available to me	Indonesia	1 (4)	0 (0)	11 (46)	9 (38)	3 (13)
	Malaysia	1 (2)	8 (20)	9 (22)	13 (32)	10 (24)
	Vietnam	1 (8)	4 (31)	1 (8)	6 (46)	1 (8)
	Total	3 (4)	12 (15)	21 (27)	28 (36)	14 (18)
Lack of appropriate assessment instruments	Indonesia	0 (0)	5 (21)	6 (25)	9 (38)	4 (17)
	Malaysia	12 (29)	15 (37)	6 (15)	6 (15)	2 (5)
	Vietnam	4 (31)	3 (23)	3 (23)	2 (15)	1 (8)
	Total	16 (21)	23 (29)	15 (19)	17 (21)	7 (9)
Lack of treatment materials in other languages	Indonesia	0 (0)	4 (17)	12 (50)	4 (17)	4 (17)
	Malaysia	13 (32)	11 (27)	10 (24)	3 (7)	4 (10)
	Vietnam	4 (31)	4 (31)	2 (15)	3 (23)	0 (0)
	Total	17 (22)	19 (24)	24 (31)	10 (13)	8 (10)
You don't speak the language(s) of the client	Indonesia	2 (8)	3 (13)	6 (25)	6 (25)	7 (29)
	Malaysia	5 (12)	7 (17)	8 (20)	12 (29)	9 (22)
	Vietnam	5 (38)	3 (23)	2 (15)	0 (0)	3 (23)
	Total	11 (14)	13 (17)	16 (21)	18 (23)	19 (24)
Lack of knowledge of individual's	Indonesia	0 (0)	2 (8)	7 (29)	10 (42)	5 (21)
	Malaysia	1 (2)	3 (7)	6 (16)	24 (59)	7 (17)
	Vietnam	2 (15)	5 (38)	2 (15)	2 (15)	2 (15)

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3	cultural	Total	3 (4)	10 (13)	15 (19)	36 (46)	14 (18)
4	characteristics						
5							
6							
7	Lack of	Indonesia	0 (0)	4 (17)	6 (25)	9 (38)	5 (21)
8	knowledge of the	Malaysia	1 (2)	3 (7)	8 (20)	19 (46)	10 (24)
9	nature of second	Vietnam	2 (15)	2 (15)	4 (31)	3 (23)	2 (15)
10	language	Total	3 (4)	9 (12)	18 (23)	31 (40)	17 (22)
11	acquisition by						
12	children						
13							
14	Lack of general	Indonesia	0 (0)	2 (8)	11 (46)	7 (29)	4 (17)
15	knowledge of	Malaysia	1 (2)	1 (2)	7 (17)	11 (27)	21 (51)
16	bilingualism	Vietnam	2 (15)	6 (46)	1 (8)	3 (23)	1 (8)
17		Total	2 (3)	9 (12)	19 (24)	21 (27)	27 (35)
18							
19	Lack of other	Indonesia	0 (0)	3 (13)	11 (46)	4 (17)	6 (25)
20	professionals	Malaysia	2 (5)	6 (16)	8 (20)	19 (46)	6 (16)
21	who speak	Vietnam	2 (15)	7 (54)	1 (8)	1 (8)	2 (15)
22	client's	Total	4 (5)	16 (21)	20 (26)	24 (31)	14 (18)
23	languages (e.g.,						
24	resource						
25	specialists,						
26	psychologists)						
27							
28	Lack of other	Indonesia	1 (4)	1 (4)	12 (50)	6 (25)	4 (17)
29	professionals	Malaysia	1 (2)	6 (16)	9 (22)	21 (51)	4 (10)
30	who are	Vietnam	7 (54)	2 (15)	2 (15)	2 (15)	0 (0)
31	knowledgeable in	Total	9 (12)	9 (12)	23 (29)	29 (37)	8 (10)
32	working with						
33	individuals						
34	outside of their						
35	culture						
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3	Lack of methods	Indonesia	0 (0)	5 (21)	10 (42)	5 (21)	4 (17)
4	to separate a	Malaysia	3 (7)	6 (15)	10 (24)	14 (34)	8 (20)
5	language	Vietnam	3 (23)	6 (46)	2 (15)	0 (0)	2 (15)
6	difference from a	Total	6 (8)	17 (22)	22 (28)	19 (24)	14 (18)
7	DLD						
8	Lack of	Indonesia	0 (0)	6 (25)	7 (29)	6 (25)	5 (21)
9	interpreters/transl	Malaysia	4 (10)	10 (24)	7 (17)	11 (27)	9 (22)
10	ators	Vietnam	4 (31)	7 (54)	1 (8)	0 (0)	1 (8)
11		Total	8 (10)	23 (29)	15 (19)	17 (22)	15 (19)
12	Lack of	Indonesia	0 (0)	5 (21)	9 (38)	6 (25)	4 (17)
13	knowledge of the	Malaysia	5 (12)	9 ()	10 (24)	11 (27)	5 (12)
14	developmental	Vietnam	3 (23)	22)	2 (15)	3 (23)	3 (23)
15	norms in the	Total	8 (10)	2 (15)	21 (27)	20 (26)	12 (15)
16	Individual's first			16 (21)			
17	language						
18	Lack of relevant	Indonesia	2 (8)	7 (29)	8 (10)	4 (17)	3 (13)
19	research	Malaysia	7 (17)	8 (20)	11 (27)	11 (27)	4 (10)
20		Vietnam	1 (8)	5 (42)	5 (38)	1 (8)	1 (8)
21		Total	10 (13)	20 (26)	23 (31)	16 (21)	8 (10)
22	Limited family	Indonesia	0 (0)	3 (13)	10 (42)	6 (25)	5 (21)
23	resources (e.g.,	Malaysia	6 (15)	4 (10)	8 (20)	15 (37)	8 (20)
24	transportation,	Vietnam	0 (0)	5 (38)	6 (46)	2 (15)	0 (0)
25	insurance)	Total	6 (8)	12 (15)	23 (29)	23 (29)	13 (17)
26	Lack of	Indonesia	0 (0)	3 (13)	11 (46)	5 (21)	5 (21)
27	knowledge	Malaysia	2 (5)	11 (27)	9 (22)	13 (32)	6 (15)
28	regarding	Vietnam	4 (33)	4 (33)	3 (23)	1 (8)	1 (8)
29	appropriate	Total	6 (8)	18 (23)	23 (29)	19 (24)	12 (15)
30	procedures for						
31	treating						
32	individuals from						
33	non-mainstream						
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cultural groups

Lack of information regarding low family/client literacy (in any language)	Indonesia	0 (0)	4 (17)	10 (42)	3 (13)	7 (29)
	Malaysia	3 (7)	13 (32)	6 (15)	10 (24)	9 (22)
	Vietnam	2 (15)	5 (42)	2 (15)	2 (15)	2 (15)
	Total	5 (6)	22 (28)	18 (23)	15 (19)	18 (23)
Lack of knowledge of the developmental norms in the individual's first language	Indonesia	1 (4)	4 (17)	11 (48)	7 (26)	1 (4)
	Malaysia	4 (10)	11 (27)	8 (20)	11 (27)	7 (17)
	Vietnam	2 (15)	3 (23)	3 (23)	2 (15)	3 (23)
	Total	7 (9)	18 (23)	22 (28)	20 (26)	11 (14)

Table 4. Inferential statistics for challenges in service delivery

	Frequency of encounter of: lack of family involvement	Lack of information available to me	Lack of appropriate assessment instruments	Lack of treatment materials in other languages	Don't speak the language(s) of the client	Lack of knowledge of individual's cultural characteristics	Lack of knowledge of the nature of second language acquisition by children	Lack of general knowledge of bilingualism	Lack of other professionals who speak individual's languages	Lack of other professionals knowledgeable in working with individuals outside of their culture
Gender	U = 139.50, z= -.199, p=.842	U = 106.50. z= -.978, p=.361	U= 101.50, z= -1.082, p=.279	U= 140.00, z=-.187, p=.852	U= 112.00, z=-.834, p=.404	U= 128.50, z=-.469, p=.639	U = 142.50, z=-.130, p=.896	U = 141-50, z=-.153, p=.878	U = 98.00, z= -1.168, p=.243	U= 120.00, z=-.662, p=.508
Country	H(2) = 7.504, p=.023	H(2) = 1.081, p=.583	H(2) = 14.551, p=.001	H(2) = 11.338, p=.003	H(2) = 4.615, p=.100	H(2) = 3.758, p=.153	H(2) = 4.008, p=.135	H(2) = 18.976, p=.000	H(2) = 7.283, p=.026	H(2) = 15.373, p=.000
Age	r= -.037, p=.745, N=78	r= .127, p=.269, N=78	r= .127, p=.265, N=78	r= .071, p=.538, N=78	r= -.017, p=.880, N=78	r= .119, p=.300, N=78	r= -.032, p=.779, N=78	r= .047, p=.682, N=78	r= .079, p=.492, N=78	r= .083, p=.472, N=78
Qualification	H(4) = 4.089, p=.394	H(4) = 1.569, p=.814	H(4) = 5.964, p=.202	H(4) = 8.853, p=.065	H(4) = 4.118, p=.390	H(4) = 5.896, p=.207	H(4) = 4.702, p=.319	H(4)= 10.617, p=.031	H(4) = 3.348, p=.501	H(4)= 3.599, p=.463
Languages	r= -.220, p=.053, N=78	H(2) = 1.689, p=.430	r= .111, p=.331, N=78	r= .162, p=.156, N=78	r= -.358, p=.001, N=78	r= -.088, p=.443, N=78	r= -.109, p=.343, N=78	r= -.356, p=.001, N=78	r= -.113, p=.326, N=78	r= -.139, p=.225, N=78
Remoteness	r= -.069, p=.547, N=78	r= -.093, p=.420, N=78	r= -.194, p=.089, N=78	r= -.166, p=.145, N=78	r= -.083, p=.471, N=78	r= .052, p=.648, N=78	r= .056, p=.628, N=78	r= .003, p=.981, N=78	r= -.167, p=.561, N=78	r= -.223, p=.049, N=78
Years of experience	r= -.050, p=.662, N=78	r= -.001, p=.994, N=78	r= -.063, p=.586, N=78	r= -.019, p=.867, N=78	r= -.156, p=.172, N=78	r= .029, p=.799, N=78	r= -.113, p=.323, N=78	r= .040, p=.731, N=78	r= -.011, p=.922, N=78	r= .056, p=.624, N=78
Hours/week	r= -.044, p=.700, N=78	r= -.096, p=.402, N=78	r= .002, p=.983, N=78	r= .102, p=.374, N=78	r= -.158, p=.168, N=78	r= .196, p=.086, N=78	r= -.244, p=.031, N=78	r= -.326, p=.004, N=78	r= -.148, p=.197, N=78	r= -.099, p=.389, N=78
Languages at work	r= -.204, p=.073, N=78	r= -.054, p=.639, N=78	r= .198, p=.096, N=78	r= .202, p=.077, N=78	r= -.271, p=.016, N=78	r= -.025, p=.829, N=78	r= -.041, p=.719, N=78	r= -.236, p=.038, N=78	r= -.092, p=.424, N=78	r= -.091, p=.429, N=78
Specialised training for multilingual clients	U= 692.00, z= -.630, p=.529	U= 609.00, z= -1.499, p=.134	U= 681.00, z=-.738, p=.461	U = 644.00, z=-1.122, p=.262	U = 679.00, z=-.755, p=.450	U = 644.50, z=-1.153, p=.249	U = 619.50, z=-1.398, p=.162	U = 615.50, z=-1.429, p=.153	U = 686.50, z=-.684, p=.494	U = 584.00, z=-1.766, p=.077
Sector	H(4) = 3.504, p=.477	H(4)= 1.788, p=.775	H(4) = 7.933, p=.094	H(4)= 7.071, p=.132	H(4)= 6.280, p=.179	H(4)= 3.566, p=.468	H(4) = 3.060, p=.548	H(4) = 1.550, p=.818	H(4)= 4.310, p=.366	H(4)= 1.686, p=.793

	Lack of methods to separate a language difference from a DLD	Lack of interpreters/translators	Lack of knowledge of the developmental norms in the individual's first language	Lack of relevant research	Limited family resources (e.g., transportation, insurance)	Lack of knowledge regarding appropriate procedures for treating individuals from non-mainstream cultural groups	Lack of information regarding low family/client literacy (in any language)	Lack of knowledge of the developmental norms in the individual's first language	All challenges
Sex	U = 109.50, z= -.896, p=.370	U = 127.00, z= -.488, p=.625	U = 137.50, z= -.244, p=.807	U = 79.000, z= -1.610, p=.107	U = 94.000, z= -1.264, p=.206	U = 113.500, z= -.805, p=.421	U = 112.500, z= -.827, p=.408	U = 134.500, z= -.105, p=.916	U= 103.00, z= -1.020, p=.308
Country	H(2) = 7.902, p=.019	H(2) = 11.628, p=.003	H(2) = 1.222, p=.543	H(2) = .598, p=.741	H(2) = 4.965, p=.084	H(2) = 8.253, p=.016	H(2) = 8.253, p=.016	H(2) = .034, p=.983	H(2)= 7.622, p=.022
Age	r=.094, p=.412, N=78	r=-.033, p=.772, N=78	r=-.052, p=.651, N=78	r=.224, p=.049, N=78	r=.170, p=.138, N=78	r=.024, p=.832, N=78	r=.128, p=.265, N=78	r=-.037, p=.749, N=78	r=.102, p=.375, N=78
Qualification	H(4)= 4.515, p=.341	H(4)= 4.237, p=.375	H(4)= 4.756, p=.313	H(4)= 34.720, p=.445	H(4)= 2.839, p=.585	H(4)= 2.850, p=.583	H(4)= 3.106, p=.540	H(4)= 5.567, p=.234	H(4)= 3.690, p=.450
No of languages spoken	r=-.160, p=.162, N=78	r=-.196, p=.086, N=78	r=.079, p=.490, N=78	r=.005, p=.967, N=78	r=-.106, p=.354, N=78	r=-.167, p=.144, N=78	r=-.080, p=.489, N=78	r=.064, p=.580, N=78	r=-.134, p=.242, N=78
Remoteness	r=-.084, p=.464, N=78	r=-.082, p=.473, N=78	r=.139, p=.226, N=78	r=.153, p=.180, N=78	r=-.135, p=.238, N=78	r=-.219, p=.054, N=78	r=-.194, p=.088, N=78	r=.011, p=.923, N=78	r=-.083, p=.472, N=78
Years of experience	r=-.044, p=.699, N=78	r=-.073, p=.524, N=78	r=-.073, p=.520, N=78	r=.256, p=.024, N=78	r=.209, p=.067, N=78	r=.031, p=.785, N=78	r=.129, p=.262, N=78	r=-.062, p=.591, N=78	r=.022, p=.847, N=78
Hours/week	r=-0.59, p=.609, N=78	r=-0.96, p=.405, N=78	r=-.198, p=.085, N=78	r=-.060, p=.604, N=78	r=-.235, p=.039, N=78	r=-.153, p=.181, N=78	r=-.082, p=.474, N=78	r=-.173, p=.131, N=78	r=-.176, p=.123, N=78
Languages spoken at work	r=-.185, p=.106, N=78	r=-.119, p=.299, N=78	r=.125, p=.274, N=78	r=.014, p=.900, N=78	r=-.204, p=.074, N=78	r=-.155, p=.175, N=78	r=-.096, p=.403, N=78	r=-.010, p=.934, N=78	r=-.103, p=.368, N=78
Specialised training for multilingual clients	U= 637.50, z= -1.187, p=.235	U= 685.50, z= -.691, p=.490	U= 619.50, z= -1.370, p=.171	U= 674.50, z= -.807, p=.420	U= 747.00, z= -.057, p=.954	U= 567.50, z= -1.913, p=.056	U= 620.50, z= -1.364, p=.173	U= 448.00, z= -3.147, p=.002	U= 599.00, z=-1.543, p=.123
Sector	H(4) = 2.532, p=.639	H(4) = 5.976, p=.201	H(4) = 10.051, p=.040	H(4) = 6.164, p=.187	H(4) = 2.944, p=.567	H(4) = 5.538, p=.236	H(4) = 2.081, p=.721	H(4) = 3.100, p=.541	H(4)= 4.852, p=.303

Table 4 Continued

Table 5. *Suggestions to improve SLP practice in Southeast Asia* descriptive statistics.

		Strongly agree <i>n</i> (%)	Agree <i>n</i> (%)	Neutral <i>n</i> (%)	Disagre e <i>n</i> (%)	Strongly disagree <i>n</i> (%)
A course in cultural diversity should be required for graduate students in SLP programs	Ind	13 (39)	13 (39)	4 (12)	2 (6)	1 (3)
	Mal	19 (43)	16 (36)	7 (16)	0 (0)	2 (5)
	Viet	17 (52)	13 (39)	1 (3)	2 (6)	0 (0)
	Tot	49 (45)	42 (38)	12 (11)	4 (4)	3 (3)
I could benefit from post-graduate training in cultural/linguistic diversity	Ind	2 (6)	11 (33)	13 (39)	3 (9)	4 (12)
	Mal	15 (34)	16 (36)	9 (20)	3 (7)	1 (2)
	Viet	14 (42)	16 (48)	2 (6)	1 (3)	0 (0)
	Tot	31 (28)	43 (39)	24 (22)	7 (6)	5 (5)
Improving services to the culturally/linguistically diverse populations is an appropriate initiative for the SL associations in my country	Ind	6 (18)	15 (45)	10 (30)	1 (2)	1 (2)
	Mal	15 (34)	21 (48)	7 (16)	0 (0)	1 (2)
	Viet	8 (24)	20 (6)	2 (6)	1 (3)	4 (12)
	Tot	29 (26)	56 (51)	19 (17)	2 (2)	6 (5)
Bilingual and multicultural issues should be considered specialty areas of clinical practice	Ind	3 (9)	20 (61)	9 (27)	0 (0)	1 (3)
	Mal	15 (34)	12 (27)	10 (23)	4 (9)	2 (5)
	Viet	10 (30)	19 (58)	2 (6)	2 (6)	0 (0)
	Tot	28 (25)	51 (46)	21 (19)	6 (5)	3 (3)
Bilingual and multicultural issues should be an integrated part of graduate programs in SLP	Ind	4 (12)	16 (48)	10 (30)	2 (6)	1 (3)
	Mal	19 (43)	18 (41)	6 (14)	0 (0)	1 (2)
	Viet	18 (55)	14 (42)	0 (0)	1 (3)	0 (0)
	Tot	41 (37)	48 (44)	16 (15)	3 (3)	2 (2)
It is acceptable for SLPs who speak a language to provide clinical services to clients who are not native speakers of that language (e.g., a Malay SLP providing therapy in Malay to an	Ind	0 (0)	9 (34)	11 (33)	10 (30)	3 (9)
	Mal	6 (14)	15 (34)	10 (23)	11 (25)	2 (5)
	Viet	8 (24)	18 (55)	6 (18)	1 (3)	0 (0)
	Tot	14 (13)	42 (38)	27 (25)	22 (20)	5 (5)

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10 * Total number of respondents: 110 (33 Indonesian, 44 Malay, 33 Vietnamese)
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For Peer Review Only

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Table 6. *Suggestions to improve SLT practice in SE Asia inferential statistics.*

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	A course in cultural and linguistic diversity should be required for graduate students in SLP programs	I could benefit from post-graduate training in cultural/linguistic diversity	Improving services to the culturally/linguistically diverse populations is an appropriate initiative for the speech language associations in my country	Bilingual and multicultural issues should be considered specialty areas of clinical practice	Bilingual and multicultural issues should be an integrated part of graduate programs in speech and language pathology	It is acceptable for SLTs who speak a language to provide clinical services to clients who are not native speakers of that language
Gender	U= 208.00, z= 5879.00, p=.945	U= 198.50, z=-.226, p=.821	U= 209.00, z=-.052, p=.958	U= 91.00, z=-2.064, p=.039	U= 195.00, z=-.292, p=.770	U= 164.00, z=-.799, p=.424
Country	H(2)= 1.749, p=.417	H(2) = 22.048, p=.000	H(2) = 4.422, p=.110	H(2) = 4.131, p=.127	H(2) = 19.512, p=.000	H(2) = 21.568, p=.000
Age	r= .143, p=.136, N=110	r= -.012, p=.899, N=110	r= .020, p=.834, N=110	r= -.095, p=.321, N=110	r= .069, p=.476, N=110	r= .182, p=.057, N=110
Qualification	H(4)= .067, p=.999	H(4)= 4.765, p=.312	H(4)= 4.602, p=.331	H(4)= .811, p=.937	H(4)= 13.133, p=.011	H(4)= 4.124, p=.389
Languages	r= -.093, p=.335, N=110	r= -.085, p=.378, N=110	r= .059, p=.540, N=110	r= .092, p=.337, N=110	r= -.072, p=.454, N=110	r= -.095, p=.324, N=110
Remote	r= -.139, p=.147, N=110	r= -.302, p=.001, N=110	r= .038, p=.697, N=110	r= -.085, p=.378, N=110	r= -.206, p=.031, N=110	r= -.187, p=.051, N=110
Years of experience	r= .087, p=.367, N=110	r= -.059, p=.543, N=110	r= -.036, p=.707, N=110	r= .060, p=.536, N=110	r= .012, p=.901, N=110	r= .157, p=.101, N=110
Hours/week	r= .129, p=.179, N=110	r= .213, p=.025, N=110	r= .147, p=.126, N=110	r= .142, p=.140, N=110	r= .178, p=.063, N=110	r= .144, p=.133, N=110
Languages at	r= -.047, p=.627, N=110	r= -.032, p=.744, N=110	r= .053, p=.580, N=110	r= -.030, p=.756, N=110	r= -.105, p=.277, N=110	r= -.173, p=.071, N=110

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U= 1492.00, z=-.120, p=.905	U= 1459.99, z=-.323, p=.746	U= 1307.50, z=-1.321, p=.186	U= 1294.50, z=-1.380, p=.168	U= 1427.50, z=-.535, p=.593	U= 1432.50, z=-.487, p=.627
H(4)= 2.408, p=.661	H(4)= 9.746, p=.045	H(4)= 6.810, p=.146	H(4)= 9.011, p=.061	H(4)= 10.460, p=.033	H(4)= 8.602 p=.072

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