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ESL Teachers as Practitioners' Consensus of an ESL Global Competence Framework Indicators: Rasch Measurement Model Analysis

Nur Syafiqah Yaccob[1*], Harwati Hashim[2], Nurul Khairani Ismail[3], Teoh Lip Vi[4], Melor Md Yunus[5]

[1,2,3,5] *Faculty of Education, Universiti Kebangsaan Malaysia, Selangor, MALAYSIA*
[4] *University of Nottingham, Nottingham, UNITED KINGDOM*

*__Corresponding Author:__ nursyafiqahyaccob@ukm.edu.my

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ABSTRACT

As globalization increasingly influences educational priorities, the ability to define and measure teachers' global competence is paramount. This study aims to identify the perceived indicators of an ESL Global Competence Framework (ESLGCF) for English as a Second Language (ESL) practitioners, employing the Rasch Measurement Model (RMM) for data analysis. The data were gathered from 392 ESL practitioners across various public school settings in Malaysia to identify which factors encapsulate global competence relevant to their teaching practices. A survey questionnaire with indicators for the constructs representing three domains respectively for the framework was developed and employed to gather data aligning with the objectives of the study. The data was analyzed using the Rasch Measurement Model (RMM) which allows for a nuanced examination of item performance and constructs through item response theory, providing insights into the validity and reliability of the framework. The findings indicate a consensus among ESL teachers on several critical indicators of global competence, including cultural awareness, pedagogical adaptability, and communicative effectiveness across cultures. The development of a robust GCF within the context of ESL teaching not only addresses the educational needs of diverse learner populations but also contributes to the professionalization of ESL teaching globally.

Keywords: English Language Teaching and Learning, ESLGCF, ESL Global Competence Framework, Rasch Measurement Model, Teachers' Professional Development

INTRODUCTION

Global education has increasingly emerged as a guiding paradigm for preparing learners to navigate the complex realities of a globalized world. Diveki (2020) describes global education as an umbrella concept encompassing global competence, and other pedagogical orientations that respond to contemporary sociocultural and geopolitical transformations. This aligns with the North-South Centre of the Council of Europe (2019), which frames global education as an integrated set of pedagogical approaches designed to cultivate learners' awareness of global issues, interconnectedness, and social responsibility.

Within this broader paradigm, global competence has gained significant prominence due to its capacity to shape learners' abilities to understand global issues, appreciate intercultural diversity, and collaborate across cultural boundaries (Olimova, 2025). In this context, teachers are the central agents of curriculum enactment as they play a critical role in embedding global competence within classroom practices. Therefore, Parmigiani et al. (2022) emphasize that teachers' global competence is fundamental in nurturing globally competent learners. The authors explain that this is due to teachers' knowledge, awareness, dispositions, and pedagogical adaptability that directly influence learners' engagement with global issues. It can be summarize that the authors agree teachers' global

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competence becoming the core in creating and developing learners who are workplace ready with their competency in various elements in global competence.

The increasing demand for graduates with intercultural skills, transnational awareness, and adaptability underscores the need for teachers who can model and teach such competencies effectively (OECD, 2020; Auld & Morris, 2019). This is due to the active demands of global education with the inclusion of global competence scope in PISA by the Organisation for Economic Co-Operation and Development (OECD), a globally-known assessment. In classrooms, teachers are expected not only to conceptualize global competence but also to integrate it meaningfully into instructional design and interactions (Vatalaro et al., 2015). Today, as the diversity of students in language classrooms are increasing, global competence integration is even more crucial to offer a rich environment for cross-cultural exchanges and extensive local and global discussions and experiences (Olimova, 2025). This reflects a broader shift in education toward preparing learners for hyperconnected, technologically mediated societies marked by cultural diversity, global mobility, and rapidly evolving knowledge economies (Kerkhoff & Cloud, 2020; Sinagatullin, 2019).

Additionally, in English language teaching and learning, the need for globally competent English as a second language (ESL) teachers is especially pronounced in multilingual and multicultural contexts such as Malaysia, where English serves as both a disciplinary subject and a linguistic tool for global engagement. Thus, identifying validated indicators of ESL teachers' global competence is essential for strengthening pedagogical practices and aligning national education priorities with global expectations.

LITERATURE REVIEW

Global competence has become a central construct in 21st-century education discourse, particularly due to its alignment with Sustainable Development Goal 4 (SDG4). The highlight on the component of quality education in SDG4 emphasizes inclusive, equitable, and just and quality education for all. In line with this mandate, the cultivation of global competence serves as a practical pathway for operationalizing SDG4 within classroom settings. For instance, integrating global competence into teaching practices supports teachers in addressing diverse learners' needs and in incorporating global, intercultural, and sociocultural issues into classroom instruction (Yaccob et al., 2022; UNESCO, 2018). As globalization reshapes communication, mobility, and knowledge production, global competence is increasingly recognized as essential for teachers navigating culturally diverse learning environments (Tichnor-Wagner et al., 2019; Olimova, 2025; Huang, 2021; Mansilla & Wilson, 2020).

Despite the recognized importance of global competence, studies in Malaysia constantly reveal substantial gaps in ESL teachers' understanding, awareness, and pedagogical skills related to global competence (Yaccob et al., 2022; Salih & Omar, 2021). Although many language teachers participate in generic professional development programs organized by the Ministry of Education, these initiatives often lack explicit focus on global competence, intercultural communication, and global citizenship education (Ismail & Abdullah, 2023). As a result, many teachers struggle to translate global competence concepts into classroom practice, leading to inconsistencies in instructional implementation. This highlights the urgent need to reposition English language teacher education that can help learners achieving global competence (Low, 2025).

There are foundational frameworks by Mansilla and Wilson (2020) and the OECD (2018) that provide conceptual clarity by identifying key dimensions of investigating the world, recognizing perspectives, communicating across cultures, and taking action. However, scholars argue that these frameworks are often shaped by Western epistemologies and do not fully reflect cultural values, sociopolitical contexts, or educational realities in Asian countries (Kuk, 2024; Kole, 2025). Thus, this calls for localized and culturally grounded frameworks that align global competence with regional sociocultural identities and linguistic landscapes, especially in ESL settings where language and culture intersect in complex ways (Chen et al., 2023).

However, the lack of empirical frameworks tailored to ESL practitioners limits the systematic integration of global competence into language education. While global competence has been widely discussed among scholars, policymakers, and educators, the discourse is predominantly shaped by Western perspectives (Jiaxin et al., 2024). This leaves a noticeable gap, as Asian viewpoints and cultural contexts are often overlooked (Kuk, 2024). Consequently, the conceptualization of global competence lacks a truly inclusive and diverse foundation that incorporates the rich, varied insights from Asian societies. As ESL teaching increasingly involves navigating cultural diversity, global topics, multilingual realities, and global Englishes, a validated ESL Global Competence Framework becomes crucial. Such a framework can guide teachers' professional growth, support curriculum alignment, and inform policy decisions regarding teacher development in multilingual contexts.

The present study addresses these gaps by using the Rasch Measurement Model to identify consensus indicators of an ESL Global Competence Framework (ESLGCF) grounded in the Malaysian ESL teaching and

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learning context. Through empirical validation, this study contributes to a more culturally contextualized and pedagogically relevant understanding of global competence for ESL practitioners.

METHODOLOGY

This study employed a quantitative research design using an online survey questionnaire to identify ESL practitioners perceived indicators of an ESL Global Competence Framework (ESLGCF). The quantitative approach is consistent with recent research on global competence measurement, which emphasizes the value of large-scale, evidence-based assessments for validating constructs across diverse educational settings (Kerkhoff, 2017; Huang, 2021). Nevertheless, the use of survey questionnaire methodology is aligned with international practices in global competence studies, such as OECD PISA assessments which rely on structures instruments to capture constructs related to intercultural communication, global awareness, and pedagogical adaptability.

Participants

The participants consisted of 392 ESL teachers from public secondary schools across 13 states in Malaysia, selected using simple random sampling. According to Fraenkel et al. (2016), simple random sampling ensures each member of the target population has an equal and independent chance of selection, thus enhancing representativeness, which is an important requirement when developing or validating educational frameworks.

Population data from the Educational Planning and Policy Research Division (EPRD) reported 19,250 ESL teachers in 2022. The teachers were categorized into four major zones (Table 1):

Table 1 Zone and state of the population

Zone	State	Population
South	Johor, Melaka, Negeri Sembilan, Kuala Lumpur, Selangor, Wilayah Persekutuan, and Putrajaya	7,548
North	Kedah, Penang, Perak, and Perlis	4,333
East Coast	Kelantan, Pahang, and Terengganu	3,786
Borneo	Sabah and Sarawak	3,583

Using the Raosoft Sample Size Calculator (Raosoft, 2004), the minimum sample was 377 teachers at a 95% confidence level and a 5% margin of error. This aligns with the Krejcie and Morgan (1970) sample size determination table, which recommends a minimum of 377-384 for populations between 20,000 and 40,000. Rasch scholars and researchers such as Linacre (2015) and Souza et al. (2017) also affirm that a sample size between 250-300 can sufficiently test the intended objective within the Rasch parameters. Thus, obtaining 392 participants exceeds the minimum threshold and ensures robust model estimations. This is further supported by Nik Suryani (2018), who agrees that the increase in sample size will increase the precision and provide a more statistically significant result.

The samples were numbered accordingly, from 1 to 7,548 (South), 7,549 to 11,881 (North), 11,882 to 15,667 (East Coast), and 15,568 to 19,250 (Borneo). Selected samples were generated using a random number generator (Figure 1) and ethics approval was obtained from EPRD prior to data collection process. Then, the initial step of the data collection was conducted by emailing the samples and submitting the survey questionnaire in social networking service, Telegram groups with the samples. The responses were monitored by the researcher.

Answer:

10696 14789 1382 8127 18890 10743 9131 15791 18132 12772 15946 14727 15380 1492 9129 16642
15417 8343 13858 14207 16284 7665 9270 5101 1485 11694 7154 17520 13104 3849 10147 6197
17621 13270 3218 17542 14967 16077 10924 17807 13825 15269 2365 3644 2409 13911 6404 10188
17371 7752 2483 939 1420 15644 9235 12153 1488 999 11797 1019 13620 1642 15881 16968 9068
13702 15020 5254 14110 5874 15252 11745 11540 10708 11435 2786 6057 5229 14621 1700 14877
14903 8514 18466 7363 8456 5691 17721 1098 13751 8164 9519 6198 14335 8716 7330 3484 14952
11754 7255 16618 9331 1250 6541 8817 15496 9285 5057 7064 12120 18789 18376 13341 10133
15254 5126 307 1229 1482 11711 7828 13695 4902 9265 18140 15255 15815 12802 69 17674 17970
14217 1984 8126 3940 2378 16405 6691 13388 13168 10726 7190 18331 6483 2104 11977 9566
13060 18102 7399 972 63 1501 11721 10471 1062 10428 4479 7019 3440 5870 16127 9404 2137
5093 5218 18533 9591 3466 3821 18569 18667 9293 9363 4742 11282 2255 2163 3844 15412 18528
4843 6336 1538 13764 3029 5496 18538 11078 5314 9945 6722 12768 14774 11807 3011 13128
18792 5436 5 4781 17193 17607 1151 9997 6206 2941 14560 6767 10119 6088 18621 16698 6234
10784 18016 12488 18050 3024 17640 10405 12706 16371 18029 13568 17275 17634 9757 12310
17795 11689 15045 1764 13768 6774 19029 11831 15920 5041 48 16214 15494 14925 9752 8800
6380 14894 4665 2618 14530 16697 15604 12254 7283 18507 16914 5619 17325 17496 15355 16670
10768 2537 9254 8481 2576 16715 4949 19061 410 9050 10667 14994 11828 17022 8840 8971 13765
5177 15817 13727 1245 4447 9634 5014 13338 4231 9422 13658 14087 15469 7764 1390 14404 6992
10297 6127 15779 10991 11334 8583 4075 6946 10635 473 12230 4061 8638 10131 18181 16451
17678 6085 11398 14028 5181 295 1879 5937 4295 11750 6660 2399 17157 3299 1180 2524 13583
9405 4929 10437 5817 17377 2219 6867 11292 2166 13352 6324 7180 4499 19209 6975 6212 13291
16709 7250 9149 6670 8240 19063 1919 7464 7789 4119 15600 17720 15006 5627 11063 4645 18726
2156 3087 8735 1994 1652 11023 12070 9081 12399 11107 2890 8256 6530 14423 13462 2948 700
4544 1590 10537 2687 18180 12963 9445 12659 10850 2598 14314 6869 8746

Figure 1. The result from the random number generator

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Instrument

The online survey questionnaire was developed based on indicators identified through prior expert review and literature findings, reflecting the multidimensional nature of global competence frameworks (Mansilla & Wilson, 2020; OECD, 2018; Tichnor-Wagner et al., 2019). The constructs and indicators were adapted accordingly aligning with the Malaysian ESL context. The instrument aims to collect baseline data on the responses to the constructs and indicators agreed on by the panel of experts, analyse the misfits of each, and observe the reliability and validity (Krishnan & Noraini, 2018). It captures teachers' perceptions across three domains of ESLGCF: knowledge, skills, and dispositions in relation to global competence in the ESL context. The instrument underwent validation through Rasch Measurement Model (RMM) procedures to examine reliability, dimensionality, and item functioning. RMM eliminates the indicators or items that did not represent the constructs in the framework and do not meet the reliability and validity standards by Rasch analysis (Krishnan & Noraini, 2018). This approach mirrors established validation practices in global competence instrument development (Planinic et al., 2019; Bond & Fox, 2015).

Data Collection Procedure

Following ethical approval, participants were contacted through official communication channels with a study information sheet and consent form. The questionnaire was administered online, ensuring accessibility across Malaysia's geographical regions. Participation was voluntary and anonymous to reduce response bias and enhance data quality.

Data Analysis

The Rasch Measurement Model (RMM) is an item-response theory-based framework utilized for assessing the quality of survey items. Data were analyzed using the RMM through WINSTEPS version 3.73. Rasch analysis was selected because it offers a robust, theory-driven approach to evaluating survey instruments and is widely applied in the development of educational scales that measure latent constructs such as global competence (Krishnan & Noraini, 2018; Boone et al., 2014). It plays a crucial role in analyzing the validity and reliability of the survey instrument (Planinic et al. 2019). Thus, it serves as an effective analytical method for developing valid and reliable instruments grounded in statistical analysis. Additionally, Rasch analysis yields both item and person separation indices, which indicate the number of ability strata identified within the sample (Krishnan & Noraini, 2018). They further note that the item separation index reflects the difficulty level of each item.

The questionnaire's validity is determined using the point-measure correlation Coefficient (PTMEA Corr or PMC) (Bond & Fox 2015). The three criteria applied include Mean Square fit (MNSQ), Z-standard outfit (ZSTD), and Point Measure Correlation (PMC) values. According to Krishnan and Noraini (2018), MNSQ fit statistics are employed to evaluate the degree of randomness or distortion within the measurement system, while ZSTD fit statistics assess the improbability of the data. Boone et al. (2014) specify the acceptable ranges for these criteria: a) outfit MNSQ value: an accepted range of 0.6 to 1.4, b) Z-standard outfit value (ZSTD): an accepted range of -2 to +2, and c) Point Measure Correlation (PMC): an accepted range of 0.4 to 0.85. Therefore, the findings ascertained whether the MNSQ, ZSTD, and PMC values fell within their respective acceptable ranges, leading to modifications or removals of indicators (items) that did not conform to these standards. The modifications or removal of items is to ensure that the final instrument aligns with the psychometric rigor required for the development of a global competence framework.

RESULTS

Table 2 presents the demographic profile of the 392 ESL teachers who participated in the study.

Table 2. Demographic profile of the participants

Item		Frequency	Percent (%)
Gender	Female	329	83.7
	Male	64	16.3
Age	25 to 30 years old	29	7.4
	31 to 40 years old	183	46.6
	41 to 50 years old	104	26.5
	51 years old and above	77	19.6
State	Johor	47	12.0
	Kedah	24	6.1

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	Kelantan	22	5.6
	Melaka	51	13.0
	Negeri Sembilan	27	6.9
	Pahang	20	5.1
	Penang	24	6.1
	Perak	44	11.2
	Perlis	5	1.3
	Sabah	28	7.1
	Sarawak	17	4.3
	Selangor/Kuala Lumpur/Wilayah Persekutuan/Putrajaya	63	16.0
	Terengganu	21	5.3
School	Urban	171	43.5
	Semi-urban	146	37.2
	Rural	76	19.3
Years of ESL Teaching Experience	1 to 5 years	42	10.7
	6 to 15 years	191	48.6
	16 to 25 years	89	22.6
	26 years and above	71	18.9

Although the number of female teachers (83.7%) is higher than that of male teachers (16.3%), gender was not a comparative focus of this research. In terms of teaching location, 43.5% taught in urban schools, followed by 37.2% in semi-urban and 19.3% in rural schools. The sample represents teachers from 13 Malaysian states, with the highest proportion from Selangor, Kuala Lumpur, Wilayah Persekutuan, and Putrajaya (16%), and the lowest from Perlis (1.3%) and Sarawak (4.3%). Participants ranged in age from 25 to over 51 years old and reflected varied teaching experience: 48.6% had 6–15 years of ESL teaching experience, while smaller proportions reported either fewer than 5 years (10.7%) or more than 26 years (18.9%) of experience.

Item Fit Analysis

To determine the suitability of items in representing their respective constructs, three Rasch fit statistics were evaluated: Outfit Mean Square (MNSQ), Outfit Z-standard (ZSTD), and Point Measure Correlation (PMC). Items were retained when they met at least two out of the three criteria: Outfit MNSQ (0.6–1.4), Outfit ZSTD (−2 to +2), and PMC (0.40–0.85). Detailed analyses for each construct are presented in the subsequent subsections.

Construct

a) Global Awareness

As presented in Table 3, seven items measuring Global Awareness were analysed Table 3.

Table 3 Misfit order of global awareness construct

Construct	Item	Measure	Outfit MNSQ	Outfit ZSTD	PMC
Global Awareness (GA)	GA1	1.1400	0.9966	0.0310	0.7826
	GA2	0.9000	1.1688	0.9912	0.7790
	GA3	0.7000	0.9529	-0.1990	0.7984
	GA4	-0.0300	**1.5522**	**2.1416**	0.7294
	GA5	1.3600	1.3415	**2.0613**	0.7418
	GA6	1.8100	1.4146	**2.5814**	0.7417
	GA7	0.4600	1.4145	1.9414	0.7499

Based on the findings, six items met the acceptable thresholds across at least two of the fit indices, while GA4 exceeded the MNSQ (1.5522) and ZSTD (2.1416) limits. Hence, GA4 was removed, leaving six valid items for the construct, consistent with recommendations by Bond and Fox (2007) and Linacre (2007), who suggest prioritising MNSQ over ZSTD when discrepancies occur.

b) Multicultural Awareness

The compatibility (Misfit order) of eight items for the Multicultural Awareness construct is shown in Table 4.

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Table 0 Misfit order of multicultural awareness construct

Construct	Item	Measure	Outfit MNSQ	Outfit ZSTD	PMC
	MA1	0.3700	0.9636	-0.119	0.7933
	MA2	-1.2500	0.861	-0.2591	0.7497
	MA3	-0.9800	0.9811	0.0510	0.7507
	MA4	-0.4100	0.8507	-0.5091	0.7852
	MA5	0.0200	0.794	-0.8992	0.7920
	MA6	0.5000	1.0966	0.5511	0.7847
Multicultural	MA7	1.3300	**1.6897**	**3.7517**	0.7546
Awareness (MA)	MA8	0.5400	1.1008	0.5711	0.7794

From the eight items, seven items demonstrated good fit across all indices, with acceptable MNSQ (0.79–1.10), ZSTD (−0.90 to 0.57), and PMC (0.75–0.79) values. MA7 failed on two indices and was excluded, resulting in seven retained items.

c) Indigenous Knowledge

For the construct of Indigenous Knowledge, the six items are analysed for their compatibility (Misfit order) as seen in Table 5.

Table 5 Misfit order of indigenous knowledge construct

Construct	Item	Measure	Outfit MNSQ	Outfit ZSTD	PMC
	IK1	2.1300	**1.6406**	**3.7916**	0.7362
	IK2	1.7000	1.3053	1.9513	0.7702
	IK3	-0.6100	0.9063	-0.2491	0.7991
Indigenous	IK4	-0.7600	0.7965	-0.6192	0.7971
Knowledge	IK5	-0.2600	1.0412	0.2510	0.7922
(IK)	IK6	0.6600	1.0576	0.3711	0.7950

Among six items assessed (Table 5), IK1 showed misfit with MNSQ (1.6406) and ZSTD (3.7916) values outside acceptable ranges. The remaining five items met the criteria and were retained for the construct.

d) Self-Awareness

The compatibility (Misfit order) of eight items for the Self-Awareness construct is shown in Table 6 below. The MNSQ value range, ZSTD value range, and PMC value range are the analyses that are covered.

Table 6 Misfit order of self-awareness construct

Construct	Item	Measure	Outfit MNSQ	Outfit ZSTD	PMC
	SA1	-1.9600	0.5702	-0.8694	0.7464
	SA2	-1.8400	**0.4058**	-1.4996	0.7730
	SA3	-1.5400	**0.4635**	-1.4795	0.7814
	SA4	-0.8700	**0.5029**	-1.8395	0.8038
	SA5	-0.7600	0.7404	-0.8393	0.7870
	SA6	-0.2600	1.1656	0.7112	0.7547
Self-Awareness	SA7	-0.5600	0.6803	-1.2093	0.7860
(SA)	SA8	-1.1400	0.8096	-0.4492	0.7594

All eight items (Table 6) demonstrated acceptable ZSTD and PMC values; however, SA2, SA3, and SA4 fell outside the MNSQ range. As they met two of the three fit conditions, all items were retained, maintaining eight indicators for this construct.

e) Intercultural Collaboration

Table 7 presents the analyses for the six indicators representing the construct of Intercultural Collaboration

Table 7 Misfit order of intercultural collaboration construct

Construct	Item	Measure	Outfit MNSQ	Outfit ZSTD	PMC
	IC1	0.5000	1.4665	**2.1715**	0.7390
	IC2	0.9400	1.0637	0.4211	0.7846
	IC3	1.4400	1.0300	0.2510	0.7887
	IC4	0.9800	0.8361	-0.9792	0.8081
	IC5	0.7000	0.8093	-1.0592	0.8010
Intercultural Collaboration (IC)	IC6	0.6600	0.6041	**-2.4594**	0.8284

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Six items were analysed (Table 7). All items demonstrated acceptable MNSQ and PMC values. Although IC1 and IC6 exceeded the ZSTD limits, they were preserved because they satisfied two indices and are theoretically important to the construct.

f) Diversity and Inclusion

As presented in Table 8, eight items representing Diversity and Inclusion construct were analyzed.

Table 8 Misfit order of diversity and inclusion construct

Construct	Item	Measure	Outfit MNSQ	Outfit ZSTD	PMC
Diversity and Inclusion (DI)	DI1	0.6600	0.7990	-1.1092	0.8133
	DI2	1.1000	0.8016	-1.2492	0.7938
	DI3	-0.8200	0.7123	-0.9293	0.7845
	DI4	0.2000	**0.5029**	**-2.8095**	0.8406
	DI5	0.4600	0.6989	-1.6493	0.8141
	DI6	-0.6100	0.7254	-0.9793	0.7965
	DI7	-0.4600	0.7064	-1.1393	0.7985
	DI8	-0.5100	0.6069	-1.5894	0.8142

Based on the findings, seven out of eight items exhibited good fit. DI4 fell below the MNSQ threshold (0.5029) and exceeded the ZSTD limit (−2.8095), warranting its removal. The remaining seven items were accepted.

g) Sensitivity towards Beliefs and Practices Construct

For the construct of Sensitivity towards Beliefs and Practices, the six items are analysed for their compatibility.

Table 9 Misfit order of sensitivity towards beliefs and practices construct

Construct	Item	Measure	Outfit MNSQ	Outfit ZSTD	PMC
Sensitivity towards Beliefs and Practices (SBP)	SBP1	-0.9200	**0.5406**	-1.6095	0.7916
	SBP2	-0.7100	**0.4974**	-1.9995	0.8061
	SBP3	-0.3600	0.8148	-0.6792	0.8006
	SBP4	-0.5600	**0.4118**	**-2.6596**	0.8357
	SBP5	-0.1700	0.9643	-0.0690	0.7906
	SBP6	-0.5100	0.6637	-1.3093	0.7972

Table 9 presents the analysis results of the indicators. As seen above, among six items, SBP4 failed to meet the MNSQ and ZSTD criteria and was therefore removed. Five items were retained.

h) Value Perspectives Construct

Table 10 below displays the findings for the construct of Value Perspectives.

Table 10. Misfit order of value perspectives construct

Construct	Item	Measure	Outfit MNSQ	Outfit ZSTD	PMC
Value Perspectives (VP)	VP1	-0.8700	0.5762	-1.4894	0.7850
	VP2	-0.8700	**0.4728**	-1.9895	0.8064
	VP3	0.5000	1.1153	0.6411	0.7732
	VP4	-0.1200	0.6650	-1.5293	0.8102
	VP5	-0.7100	**0.4991**	-1.9995	0.8138
	VP6	-0.3100	0.6705	-1.3893	0.8113

From the analyses, all six items reported acceptable ZSTD and PMC values. Although VP2 and VP5 were slightly outside the MNSQ range, they met two criteria and were maintained in the construct.

Unidimension of Construct

The Rasch PCA of residuals indicated strong unidimensionality, with Raw Variance Explained by Measures at 62.0%, well above the threshold for a strong construct (Linacre, 2006). The Unexplained Variance in the first contrast was below 15%, further confirming that all constructs in the ESL Global Competence framework measure singular underlying dimensions. Figure 2 exhibits the comprehensive unidimension of the constructs for the ESLGCF.

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Standardized Residual variance (in Eigenvalue units)				
		Empirical		Model
Total raw variance in observations	144.7	100.0%		100.0%
Raw variance explained by measures	89.7	62.0%		61.5%
Raw variance explained by persons	66.1	45.7%		45.2%
Raw Variance explained by items	23.7	16.3%		16.2%
Raw unexplained variance (total)	55.0	38.0%	100.0%	
Unexplned variance in 1st contrast	5.1	3.5%	9.2%	
Unexplned variance in 2nd contrast	4.1	2.8%	7.5%	
Unexplned variance in 3rd contrast	3.5	2.4%	6.3%	
Unexplned variance in 4th contrast	2.7	1.9%	5.0%	

Figure 1. The value for raw variance explained by measures

Polarity of Item and Construct

According to Norasmah et al. (2014), the output analysis of the Rasch Measurement model can determine the validity of a questionnaire. The authors add that the item polarity, which is the point-measure correlation coefficient (PTMEA Corr/ PMC) is the primary output to be referred to. As seen in Table 11, all items demonstrated positive PMC values within the accepted range of 0.40–0.85, indicating alignment with the constructs they are intended to measure.

Table 11. Item polarity

No	Construct	PMC				Total Item
		Min	Item	Max	Item	
1	Global Awareness	0.7417	GA6	0.7984	GA3	6
2	Multicultural Awareness	0.7497	MA2	0.7933	MA1	7
3	Indigenous Knowledge	0.7702	IK2	0.7991	IK3	5
4	Self-Awareness	0.7464	SA1	0.8038	SA4	8
5	Intercultural Collaboration	0.7390	IC1	0.8284	IC6	6
6	Diversity and Inclusion	0.7845	DI3	0.8142	DI8	7
7	Sensitivity towards Beliefs and Practices	0.7972	SBP5	0.8061	SBP2	5
8	Value Perspectives	0.7732	VP3	0.8138	VP5	6

Separation and Reliability of Item and Person

Table 12 presents the overall results for the separation of items and participants of the framework.

Table 12 The separation of item and person

	Item	Person
Separation	4.06	3.75

Table 13 presents the overall results for the reliability of items and participants of the framework.

Table 13 Reliability of item and person

	Item	Person
Reliability	0.94	0.93

Item and person separation indices were 4.06 and 3.75 respectively (Table 12), exceeding the recommended value (>2.0), demonstrating strong discriminatory ability between items and participants. Reliability indices were excellent for both items (0.94) and persons (0.93) (Table 13). The KR-20 value of 0.99 further confirmed the high internal consistency of the instrument.

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	Mean	SD	Max	Min	Separation		Reliability		CRONBACH ALPHA (KR-20)
					Real	Model	Real	Model	
Item	0.00	0.93	2.13	-1.96	4.06	4.19	0.94	0.95	0.99
Person	7.01	3.57	11.86	-3.10	3.75	3.78	0.93	0.93	

Figure 3. Person reliability

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Furthermore, the reliability of person, as indicated in Figure 3, is similar to the model value of 0.93. Thus, it explains that the consistency of the participants when responding to the items is at an excellent level.

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	Mean	SD	Max	Min	Separation		Reliability		CRONBACH ALPHA (KR-20)
					Real	Model	Real	Model	
Item	0.00	0.93	2.13	-1.96	4.06	4.19	0.94	0.95	0.99
Person	7.01	3.57	11.86	-3.10	3.75	3.78	0.93	0.93	

Figure 0. Item reliability

In Figure 4 above, the reliability of item is at 0.94, which is close to the model value of 0.95. It concludes that the representation of items for its' constructs in the instrument for the ESL Global Competence framework is at a good level (Mohammad Musab 2019).

KESELURUHAN

	Mean	SD	Max	Min	Separation		Reliability		CRONBACH ALPHA (KR-20)
					Real	Model	Real	Model	
Item	0.00	0.93	2.13	-1.96	4.06	4.19	0.94	0.95	0.99
Person	7.01	3.57	11.86	-3.10	3.75	3.78	0.93	0.93	

Figure 5. Cronbach Alpha (KR-20)

Apart from that, Figure 5 indicates that the Cronbach Alpha (KR-20) Person RAW SCORE "TEST" RELIABILITY is 0.99. According to Bond and Fox (2007), the reliability of 0.9 to 1.0 is considered very good and has an adequate consistency level. It concludes that the items for all the constructs in the framework appropriately represent their constructs.

Summary of Item Acceptance

Out of the original 55 items, five were removed (Table 14). The final set of 50 validated items robustly represents the eight constructs in the ESL Global Competence framework, confirming the instrument's validity and reliability for large-scale use.

Table 14. The items rejected by the Rasch model analysis

Constructs	Rejected Item	Statement
Global Awareness (GA)	GA4	Understand the current ESL curriculum (CEFR-aligned) to achieve global education.
Multicultural Awareness (MA)	MA7	critically relate multiple cultural immersion experiences in ESL teaching.
Indigenous Knowledge (IK)	IK1	demonstrate knowledge of indigenous community (eg. local Malaysian setting; Orang Asli).
Diversity and Inclusion (DI)	DI4	incorporate the knowledge on diversity in ESL lessons.
Sensitivity towards Beliefs and Practices (SBP)	SBP4	demonstrate empathy in addressing various topics in ESL lessons appropriately.

DISCUSSION

The findings of this study reinforce the increasing importance of global competence as an essential component of ESL teachers' professional practice. As previous scholars argue, language learning is inseparable from cultural understanding, global awareness, and intercultural communication skills (Kerkhoff & Cloud, 2020; Salih & Omar, 2021). The results indicate that ESL teachers in Malaysia recognize this interrelationship and demonstrate awareness of how elements of global competence naturally emerge within their daily instructional practices. However, the introduction of the ESL Global Competence Framework (ESLGCF) enabled teachers to reflect more deeply on these practices, offering a structured lens through which they could reinterpret their roles as

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facilitators of globally informed language learning. This supports Mansilla and Wilson's (2020) argument that conceptual frameworks strengthen teachers' ability to make sense of globalized teaching demands and translate them into pedagogical action.

The Rasch Measurement Model analysis provides strong empirical validation for the eight constructs embedded within the ESLGCF. All constructs demonstrated acceptable reliability and fit, with 50 indicators emerging as robust representations of ESL teachers' global competence. These findings mirror other recent studies that emphasize the necessity of empirically grounded frameworks in teacher education, particularly when addressing constructs influenced by globalisation and cultural diversity (Planinic et al., 2019; Krishnan & Noraini, 2018; Low, 2025; Chen et al., 2023). Importantly, constructs such as multicultural awareness, intercultural collaboration, and sensitivity towards diverse beliefs align with existing literature underscoring the importance of cultural inclusivity and plural perspectives in ESL teaching (Fiedler, 2022; Parmigiani et al., 2022).

Moreover, the teachers' responses highlight a clear need for more systematic professional development in global competence, echoing findings by Yaccob et al. (2022), who reported gaps in Malaysian ESL teachers' understanding of global competence despite acknowledging its importance. This study contributes empirical evidence that structured global competence frameworks not only support teacher reflection but also serve as a foundation for designing targeted, context-responsive training modules. As global competence conversations have historically been dominated by Western discourse, the validation of this framework within a Malaysian ESL context demonstrates the value of contextualising global competence to local realities and educational cultures, addressing concerns raised by Asian scholars about the lack of regionally grounded interpretations of global competence.

CONCLUSION

This study provides important empirical insights into the development of a standardized, contextually grounded ESLGCF for Malaysian ESL practitioners. Despite increasing emphasis on global education internationally, one persistent challenge has been the absence of a unified framework that articulates what global competence should look like in English language teaching. The 50 validated indicators across eight constructs generated in this study help to address this gap by offering a coherent and statistically reliable set of competencies tailored to the Malaysian ESL context.

The results highlight that ESL teachers are not only aware of the relevance of global competence but are also able to connect the framework to their existing teaching experiences once provided with explicit structure and guidance. This reinforces the need for systematic professional development programs that embed cultural, intercultural, and global perspectives into ESL pedagogy. Scholars such as Prabjandee (2024) and Sawalmeh and Dey (2023) emphasise that teacher training must be both comprehensive and context-sensitive. This insight is strongly supported by the present findings. The validated framework therefore serves as a practical foundation for designing teacher education initiatives, curriculum enhancements, and school-level policies that prepare teachers to navigate globalised, culturally diverse classrooms.

Overall, the study advances both theoretical and practical understandings of global competence in ESL education by offering a statistically validated framework that aligns with Malaysian classroom realities. It lays important groundwork for future research on instructional design, assessment, and teacher development, contributing to the broader goal of enhancing educational quality and fostering globally competent learners.

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Disclosure of Interest

The authors report there are no competing interests to declare.

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