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Development And Validation of A Scale for Assessing Internationalization at Home in Jiangsu Higher Education Institutions

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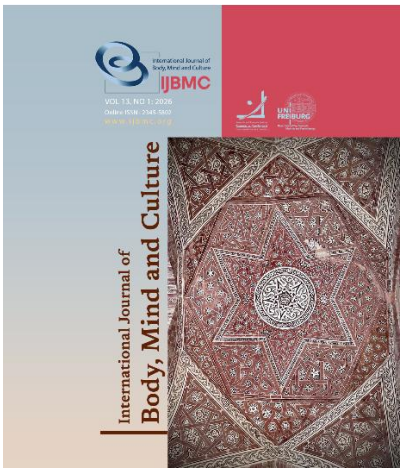

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ABSTRACT

Objective: This study aims to use Bellen and Jones' theory as the core elements, alongside Knight's framework as the domains, to establish a theoretical framework for IaH and to create a scale for the scientific measurement of the current status of IaH activities in higher education institutions.

Methods and Materials: The scale's development involved three phases: expert assessment, pre-testing (N=137), and a formal study (N=625). Item analysis, reliability analysis, exploratory factor analysis, and confirmatory factor analysis were conducted using SPSS and AMOS.

Findings: The 26-item internationalization at home (IaH) scale has been validated through five factors: Curriculum and Programs, Teaching/Learning Process, Research and Scholarly Activities, Co-curricular Activities/Extracurricular Activities, and Liaison with local community-based cultural/Ethnic Groups. These five factors indicate the IaH activities in the Jiangsu higher education institutions (HEIs).

Conclusion: The scale shows strong measurement features for assessing IaH activities in Jiangsu's higher education institutions. Its high reliability and validity make it a useful tool for evaluating IaH performance and provide scientific support for internationalization policy-making for HEIs.

Keywords: Internationalization, Higher education, Home.

Introduction

Since 2010, the Chinese government has consistently implemented a range of laws and guiding opinions to enhance the internationalization of higher education in China, which has been identified as a core objective in the contemporary era (Qin, 2021). The conventional international exchange and collaboration among higher education institutions primarily emphasize the mobility of faculty and students (Altbach et al., 2019; Knight, 2012). In recent years, the number of Chinese higher education students participating in overseas exchange and study programs has risen, yet it remains a small fraction of the overall higher education population (Liu et al., 2020; Wächter, 2000). The traditional internationalization model, predicated on mobility, benefits only a few students (Wächter, 2000). Therefore, Chinese higher education institutions need alternative strategies to enhance the internationalization of higher education, enabling more students to benefit from this process.

The internationalization of HEIs is not a concern only for the Chinese. In 1999, concerning the internationalization of HEIs in Europe, Nilsson proposed the concept of internationalization at home as an alternative to studying abroad to benefit more students from the internationalization process of HEIs, and it has attracted considerable scholarly interest, prompting various studies and discussions about its development afterward (Leung et al., 2021; Mittelmeier et al., 2021; Rauer et al., 2021). In China, the theory of IaH was introduced relatively late, and the existing literature remains confined mainly to theoretical discussions, with no empirical measurements or analyses conducted by scholars (Li & Eryong, 2022).

Several recent studies have investigated the influence of IaH activities on various aspects of skill development, such as students' intercultural competence, and their use is on the rise (Li & Xue, 2023; Rauer et al., 2021). The studies related to IaH have focused primarily on online courses and communications, representing only a narrow aspect of one IaH activity; thus, further research is necessary, and the tool of IaH needs to be introduced within these studies to evaluate the complete picture of implementation of IaH (Hofmeyr, 2023; Sercu, 2023; Simões & Sangiamchit, 2023).

As Knight describes, the internationalization of HEIs can be divided into two parts: the domestic and the international/cross-border (Knight, 2021). To measure these two components, several tools have been developed to assess the abroad component (Cisneros-Donahue et al., 2012; Savicki & Brewer, 2023), but an at-home scale is still lacking. This means the implementation of the at-home (IaH) component in HEIs cannot be fully measured, which could hinder its development, especially when reporting to policymakers, as the IaH's impact on HEIs' internationalization will be underestimated.

This study seeks to establish a working definition of internationalization at home, which will be the foundation for developing the IaH scale to assess IaH activities within HEIs. Additionally, it aims to provide Internationalization at Home (IaH) staff with relevant evidence on the progress of IaH activities in HEIs, thereby enabling improvements that enhance the internationalization of both students and institutions.

Literature Review

Internationalization of Higher Education

Knight's prominent definition of internationalization in higher education, articulated in 2004, describes it as "a process of integrating an international, intercultural or global dimension into the purpose, functions and delivery of postsecondary education."

In the last thirty years, internationalization has significantly shaped higher education (De Wit, 2019). The internationalization process has led to substantial changes in higher education, considerably transforming it. The concept of internationalization is currently divided into two interrelated pillars: domestic and international (Knight, 2021).

The internationalization of higher education raises questions about its role in promoting educational equity versus its potential to contribute to unequal student learning outcomes, since prior internationalization of HEIs has been strongly linked to student and faculty mobility, which benefits only a small group (Beelen & Jones, 2015). Higher education institutions must implement internationalization mandates and objectives with careful consideration and purpose. Assuming that internationalization is not purposefully employed to enhance educational equity (Rumbley et al., 2012). This situation may hinder the attainment of equitable academic outcomes and limit students' ability to access

international career opportunities, thereby reducing their participation in global civic activities (Rumbley et al., 2012). Implementing IaH can significantly alter universities' internationalization strategies, thereby enhancing educational equity in higher education (Watkins & Smith, 2018). Some scholars are concerned that IaH could reinforce structural inequities in higher education, particularly due to infrastructure issues. Still, scholars from the global south see its capacity to foster more equitable outcomes at both local and international levels as presenting strong cases for its advocacy (Almeida et al., 2019; Guimarães et al., 2019).

The potential of Internationalization at Home to transform higher education has generated significant discourse in the literature regarding the aims of internationalization (Soria & Troisi, 2014). This involves cultivating intercultural learning and competencies among faculty and students, facilitating successful graduate employment, imparting versatile skills, promoting equity in educational outcomes, and addressing the disparity between developed and developing nations in international higher education (Beelen & Jones, 2015).

De Wit (2019) suggests that Internationalization at Home is expected to become the standard for preparing students with essential skills for global employment. The reasoning is that everyone who completes their education will live and work in an increasingly interconnected global environment. They will function as professionals, contributing to the economy and society, and participating in social interactions. The labor market's need for global professionals and society's demand for global citizens cannot be fully met through mobility alone. The modern curriculum must include international, intercultural, and global learning outcomes (De Wit, 2019).

Prioritizing internationalization efforts for non-mobile students and staff will likely yield the most equitable outcomes in higher education, leading to substantial transformations in institutions, teaching methodologies, and curricula (Beelen & Jones, 2015).

Theory Development of Internationalization at Home

Mestenhauser & Ellingboe (1998) introduced the notion of an "international mindset" in higher education, which catalyzed the Internationalization at Home initiative. In 2001, the first definition was: Any internationally related activity except for outbound student and staff mobility (Crowther et al., 2000).

Mestenhauser (2006) subsequently endorsed the concept as a strategy for integrating the international dimension into all facets of higher education. This involves curriculum reform, leveraging community resources, institutionalizing international education, and highlighting its significance in the global job market (Mestenhauser, 2006). It emerged as a paradigm of a global perspective.

In 2013 and 2015, scholars argue that IaH should offer a broader scope than the OECD's definition, which is the primary influencer of international higher education policy in industrialized countries (Beelen & Jones, 2015; Leask, 2013). The OECD's definition primarily emphasizes the internationalization of the curriculum and co-curriculum (Leask, 2013). The IaH should enable students to use both permanent and temporary local/global varieties in their contexts to promote intercultural learning experiences. This initiative enabled teachers and international students to engage actively with their local communities to address global and intercultural issues in their academic and extracurricular activities (Leask, 2013). This definition allows more local/non-mobile students to benefit from the internationalization of HEIs.

In 2015, Beelen and Jones proposed the most-cited definition, which states that the purposeful integration of international and intercultural dimensions into the formal and informal curriculum for all students within domestic learning environments (Beelen & Jones, 2015). In addition, Beelen and Jones underscore the importance of faculty engagement, asserting that IaH must be guided by faculty members (Beelen & Jones, 2015).

This definition enhances the earlier concepts, especially highlighting the importance of faculty. However, it still lacks clarity about which programs or elements should be considered part of the IaH program or its activities. Based on the literature, the next section clarifies the elements that should be included in the definition created by Bellen and Jones.

The Elements of Internationalization at Home

Since 2000, scholars have begun delineating the elements that should comprise the IaH and the domains it should encompass. This study identifies seven elements that were most mentioned by previous studies: an internationalized curriculum encompasses the role of

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additional languages in formal instruction, the institutionalization of Internationalization at Home (IaH), teaching and learning methodologies, intercultural learning and activities, co-curricular initiatives on campus and within the community, the integration of Information and Communication Technology (Savicki & Brewer, 2023), as well as governance and facilities (Crowther et al., 2000; Leask, 2007; Nilsson, 2003; Otten, 2003; Sierra-Huedo et al., 2024).

In 2021, Knight proposed a framework comprising five parts: curriculum and programs, teaching/learning process, research and scholarly activities, co-curricular/extracurricular activities, and liaison with local community-based cultural/ethnic groups, with 33 items (Knight, 2012).

Compare previous scholars' findings with Knight's framework, which includes all seven parts mentioned above and more detailed activities listed to make it easier for HEIs to apply. The framework clearly shows the elements of IaH and possible activities on campus, but it still lacks details on who should be involved and a clear definition of IaH.

In summary, Internationalization at Home is an initiative that seeks to align student learning and higher education objectives with institutional internationalization efforts (Knight, 2012). The main aim of internationalization initiatives at most institutions has been to increase the number of international students on campus and to promote domestic students' participation in study abroad programs (Knight, 2004). This approach can potentially enhance benefits for all students; however, it has often impeded global learning and engagement on the home campus (Harrison, 2015). Internationalization at Home provides a structured framework and a range of actions for leaders, practitioners, and academics to implement, ensuring that all students benefit from the internationalization of higher education (Beelen & Jones, 2015).

Based on the above literature, this study will develop a three-dimensional IaH model and create a five-component IaH scale, drawing on Bellen & Jones' theory and Knight's framework.

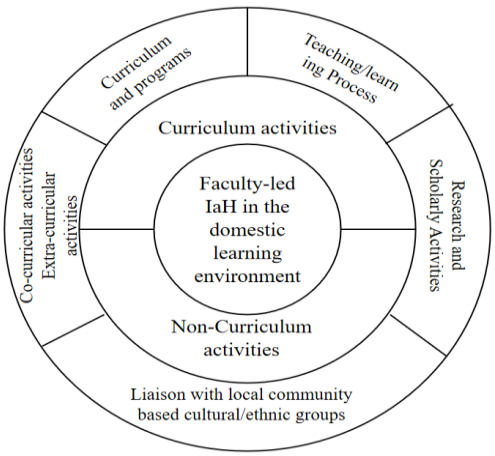
Methods and Materials

Development of a research model

Drawing on the literature review, a model of internationalization at home has been developed to translate the literature into practical academic value and to serve as the theoretical basis for creating and validating the IaH scale. The model comprises three dimensions, as illustrated in Figure 1. Integrating international and intercultural dimensions into the formal and informal curriculum is a faculty-led initiative. This encompasses the curriculum and programs, the teaching/learning process, research and scholarly activities, co-curricular/extracurricular activities, and liaison with local community-based cultural/ethnic groups, all aimed at enhancing the educational experience for students in domestic learning environments.

Figure 1

The Internationalization at Home Model.



According to Beelen & Jones (2015), the fundamental framework element is faculty-led IaH within the domestic learning environment.

The second dimension of internationalization at home encompasses both formal and informal curricula. This includes courses with internationalization content, visiting teachers and scholars, interactions with diverse cultural groups, exchanges, various transnational and cross-cultural online courses, and additional exchange opportunities (Beelen & Jones, 2015).

The third dimension of this framework uses Knight's "Framework for Internationalization at Home" to categorize both formal and informal curricula, facilitating a more accurate analysis of internationalization at home activities in this research. The third dimension includes five components: curriculum and programs, the teaching/learning process, research and scholarly activities, co-curricular/extracurricular activities, and liaison with local community-based cultural/ethnic groups.

Data collection

Jiangsu Province in China is the leading province in terms of education. Higher education institutions like Global North Education Resources encompass top-tier research universities in the capital city. Other regions and cities have only colleges or vocational colleges, similar to those in the Global South. Jiangsu offers a diverse range of subjects with a longstanding tradition of internationalization. The research conducted in Jiangsu will serve as a valuable reference for other provinces and regions.

The IaH scale bilingual (Chinese/English) version link was created using the China Wenjuanxing Platform. Researchers solicited participation from lecturers and students at universities and colleges to complete the scale from July 5 to July 7, 2024, for pretest, and from November 12 to November 24 for the formal round of data collection. The sample includes a diverse group of students, varying by gender and grade level, to mitigate data distortion and improve the practical applicability of the research findings.

Research ethics

The study received approval from the Institutional Review Board, with an approval certificate Number: DPU BSH 3101/2567. The researchers created a comprehensive informed consent form to ensure that participants fully understood the study's conditions and requirements before participating, and that they could withdraw at any time. The researchers provide the accuracy and authenticity of the collected data while strictly adhering to confidentiality principles to safeguard personal information.

Procedure of data analysis

This research examines the quantitative analysis of questionnaire data, consisting of two main phases: the pretest and the formal study. During the pretest phase, item and reliability analyses were performed using the data matrix in SPSS. This entailed examining the attributes of each item in the scale to confirm its efficacy and evaluating the reliability of the scale measurements. EFA was conducted to identify the number of factors in the IaH scale. This step facilitates understanding and refinement of the scale, improving the reliability of the final scale by reducing its dimensions, identifying its underlying dimensions, and providing guidance for subsequent confirmatory factor analysis (CFA).

A confirmatory factor analysis (CFA) was conducted in the following formal study phase using AMOS. CFA seeks to extract fundamental dimensions from EFA and relevant theories and to assess the discriminant validity of the IaH scale by evaluating the fit of factor models (Hair, 2009). This study's selection of EFA and CFA aligns with Otaye-Ebede (2018), who posits that integrating EFA and CFA can improve analytical accuracy and yield more reliable evidence of the scale's effectiveness.

Research procedure

The development and validation of the IaH scale involves four key steps: scale development, expert review, pretesting, and conducting a formal study.

The initial step involved a review of the literature on internationalization at home in higher education, using the theoretical frameworks established by Knight (2021) and Beelen & Jones (2015) as the foundation for the research. Internationalization at home is assessed through five dimensions: Curriculum and Programs, Teaching/Learning Process, Research and Scholarly Activities, Co-curricular Activities/Extra-curricular Activities, and Liaison with Local Community-Based Cultural/Ethnic Groups.

The next step involved summarizing the literature on internationalization at home. The summarized items were validated through interviews with five experts from the International Affairs Department of higher education institutions. The experts' backgrounds vary by

nationality and education, spanning Southeast Asia and Europe. The experts are active in HEIs and hold at least a director-level position and five years of international work experience. A total of 26 activities were analyzed, encompassing the International at Home Scale, which includes five dimensions: Curriculum and Programs (Q1 to Q5), Teaching/Learning Process (Q6 to Q11), Research and Scholarly Activities (Q12 to Q17), Co-curricular/Extra-curricular Activities (Q18 to Q23), and Liaison with Local Community-Based Cultural/Ethnic Groups (Q24 to Q26). The scale is a 5-point Likert scale, where 5 indicates 'always', 4 signifies 'often', 3 represents 'sometimes', 2 denotes 'seldom', and 1 corresponds to 'never'.

The third step involved a pretest informed by the Expert Review findings, which led to the establishment of the IaH scale. This research selected three universities of varying levels in Jiangsu Province's capital, known for its educational and economic prominence, to ensure the pretest sample is representative of the formal study sample. The pretest was conducted in three steps: item analysis, exploratory factor analysis (EFA), and reliability analysis.

The fourth step involved a formal study. This research undertook a comprehensive formal investigation. The CFA and reliability analysis of the IaH scale confirmed the validity and reliability of its five dimensions and 26 items. This completion signifies the scale's development and validation.

Findings and Results

Pilot

Fowler Jr. (2013) emphasizes the need to pilot the data collection process. The pilot study seeks to evaluate the reliability and validity of the scales utilized in this research. The pretest sample size should range from three to five times the number of items in the subscale with the highest item count (DeVellis & Thorpe, 2021).

In the pilot phase, 137 students completed the questionnaire. There are 58 male students (42.34% of the total) and 79 female students (57.66%). Junior year accounted for 58.39%, while senior year accounted for 41.61%.

Item Analysis

Item analysis was conducted to evaluate the validity and effectiveness of each questionnaire item. This involved using an independent samples t-test to compare responses between the top 27% (high group) and the bottom 27% (low group) based on total item scores. A significant difference between these groups indicates that the item is well-designed and can distinguish among different levels of the measured attribute. Conversely, if no significant difference is observed, the item may lack discriminative power and should be reconsidered. A key indicator in this analysis is the critical ratio (CR), with a CR exceeding 3 indicating strong item discrimination (Landau & Everitt, 2003; McIver & Carmines, 1981).

According to Table 1, the correlation coefficients for each item ranged from .478 to .724, all of which exceeded the reference value of .400 and were statistically significant ($p < .001$). The Cronbach's alpha coefficients ranged from .936 to .939, all slightly lower than the Cronbach's alpha coefficient of the entire scale, which was .940, and over the standard of .700. The Cronbach's alpha's results shows a high coefficients may indicating a misinterpretation risk, but consider all CR values in the internationalization at home scale below exceed the statistical threshold three the scale of internationalization at home exhibits discriminatory characteristics.

Table 1

Item Analysis of Internationalization at Home Scale

Question	Cronbach's α	Discrimination	Correlation	Decisions
Criteria	>.700	>3	>.400	-
1	.937	38.746***	.653***	Selected
2	.938	37.639***	.538***	Selected
3	.939	32.780***	.523***	Selected
4	.938	37.247***	.557***	Selected
5	.939	37.417***	.481***	Selected
6	.938	39.197***	.589***	Selected

Question	Cronbach's α	Discrimination	Correlation	Decisions
Criteria	>.700	>3	>.400	-
7	.937	39.858***	.615***	Selected
8	.937	36.830***	.668***	Selected
9	.938	38.889***	.599***	Selected
10	.936	37.006***	.679***	Selected
11	.937	38.942***	.655***	Selected
12	.938	36.791***	.538***	Selected
13	.938	34.748***	.537***	Selected
14	.939	33.650***	.478***	Selected
15	.938	33.152***	.569***	Selected
16	.938	31.153***	.560***	Selected
17	.938	35.779***	.557***	Selected
18	.937	31.358***	.616***	Selected
19	.937	32.094***	.644***	Selected
20	.937	32.863***	.632***	Selected
21	.937	35.203***	.647***	Selected
22	.936	32.146***	.690***	Selected
23	.936	37.500***	.724***	Selected
24	.938	39.292***	.589***	Selected
25	.937	36.007***	.643***	Selected
26	.939	33.605***	.502***	Selected

*Note. n=137. *** p<. 001. This table presents the items of the Internationalization at Home Scale developed for this research.*

Factor Analysis

Factor analysis is a method for assessing validity, using common factor loadings and explained variance rates. The KMO value is used further to assess the acceptability of the scale's questions. The appropriateness of information extraction is evaluated through the KMO value (Kaiser, 1960). The cumulative total explained variance indicates the extent of information extraction; common variance eliminates irrational research items; and the factor loading coefficient assesses the relationship between factors and items (Williams et al., 2010; Yong & Pearce, 2013). The reliability analysis employed Cronbach's alpha as the assessment metric (Nunnally, 1978; Roberts & Wortzel, 1979).

The maximum variance rotation method was employed to assess the correlation between factors and study items in this research. The information extraction process for research item factors is illustrated below, along with the interrelationships among these factors. The factor analysis results for the Internationalization at Home Scale reveal that the items are grouped into five dimensions: Curriculum and Programs; Teaching/Learning Process; Research and Scholarly Activity; Co-curricular and Extra-curricular Activities; and Liaison with Local Community-Based Cultural and Ethnic Groups. The factor analysis of the Internationalization at Home Scale is presented in Table 2.

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Table 2

Factor Analysis of Internationalization at Home Scale

Items	Factor Loading					CV
	1	2	3	4	5	
Factor 1						
1	**.720**	.208	.273	.142	.268	.728
2	**.752**	.165	.090	.293	.030	.688
3	**.724**	.238	.081	.185	.040	.623
4	**.717**	.165	.062	.168	.321	.677
5	**.762**	.227	.002	.081	.163	.665
Factor 2						
6	.096	**.739**	.272	.107	.139	.659
7	.161	**.751**	.072	.211	.231	.693
8	.245	**.771**	.073	.253	.186	.759
9	.289	**.761**	.020	.229	.046	.717
10	.245	**.774**	.247	.197	.042	.761
11	.161	**.768**	.144	.267	.139	.727
Factor 3						
12	.060	.107	**.818**	.162	.097	.720
13	.075	.143	**.862**	.120	.019	.783
14	.042	.108	**.849**	.015	.134	.752
15	.045	.144	**.859**	.172	.079	.796
16	.110	.101	**.821**	.195	.058	.738
17	.114	.089	**.850**	.104	.155	.778
Factor 4						
18	.088	.166	.225	**.747**	.148	.667
19	.056	.191	.242	**.798**	.130	.752
20	.293	.214	.026	**.792**	.076	.766
21	.129	.175	.161	**.805**	.173	.751
22	.339	.255	.071	**.742**	.143	.757
23	.193	.282	.145	**.791**	.200	.803
Factor 5						
24	.183	.221	.164	.284	**.697**	.676
25	.131	.269	.215	.322	**.722**	.760
26	.250	.137	.127	.132	**.787**	.734

Note. n=137, CV=common variances. This table presents the items of the Internationalization at Home Scale developed in this research.

The pilot data response of the Internationalization at Home Scale indicated a KMO of .917, exceeding the acceptable threshold of .600, and a Cronbach's alpha of .940, also surpassing .600 (Roberts & Wortzel, 1979). The cumulative total explained variance was 72.810%, significantly above the 50% benchmark (Williams et al., 2010). Consequently, the five dimensions of the IaH scale have been validated as practically significant and mutually independent common factors. The pilot tests confirmed that the scale was well-designed and applicable to IaH activities.

Formal study

Demographics of the Internationalization at Home Activities

Table 3

Demographics of the Internationalization at Home Activities

Item	Variables	Number	Percentage (%)
Gender	Male	291	46.600
	Female	334	53.400
Grade	Junior (Year 3)	246	39.400
	Senior (Year 4)	379	60.600
Total		625	100

Note: n=625

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According to Table 3, this research involved 625 junior and senior undergraduate students in Jiangsu, China. Regarding gender, 53.400% of the participants were female, and 46.600% were male. To better represent Internationalization at Home activities on campus, the students' grade level was emphasized, and only students in years 3 and 4 were invited to participate in this investigation. The proportion of juniors was 39.400%, and the proportion of seniors was 60.600%.

Table 4

Demographics of the Internationalization at Home Activities

IaH	Gender		Grade	
	M	***SD***	***M***	***SD***
Male (*n*=291)	3.533	.793	3.531	.798
Female (*n*=334)	3.663	.608	3.649	.630
t	2.272		1.957	
p	.023*		.051	

Note: n=625, M=mean, SD=standard deviation.

As shown in Table 4, results of the gender analysis showed a .05 level of significance between students in participating in the internationalization at home activities (t=2.272, p<.05), and the comparative results showed that the average value attributed to intercultural competence by males (M=3.533) was significantly lower than that of females (M= 3.663). No significant differences were found among grade levels at universities in the number of students participating in internationalization at home activities (p> .05). Descriptive Statistical Analysis of the Internationalization at Home Activities.

According to Kline (2023) and McDonald & Ho (2002), a good model fit should meet the criteria below, which are the degree of freedom (χ^2/df < 5), Comparative Fit Index (CFI above .90), Goodness Fit Index (GFI above .80), Adjust Goodness Fit Index (AGFI lower than .08), Normed Fit Index (NFI above .80), Standardized Root Mean Square Residual (SRMR < .08) and Root Mean Square Error of Approximation (RMSEA<.08). In Table 5 the χ^2/df is 1.114, CFI=.997, GFI=.962, AGFI=.954, NFI=.967, SRMR=.019, RMSEA = .013; all figures met the criteria and showed a good fit for the model. The module diagram is shown in Figure 2.

Table 5

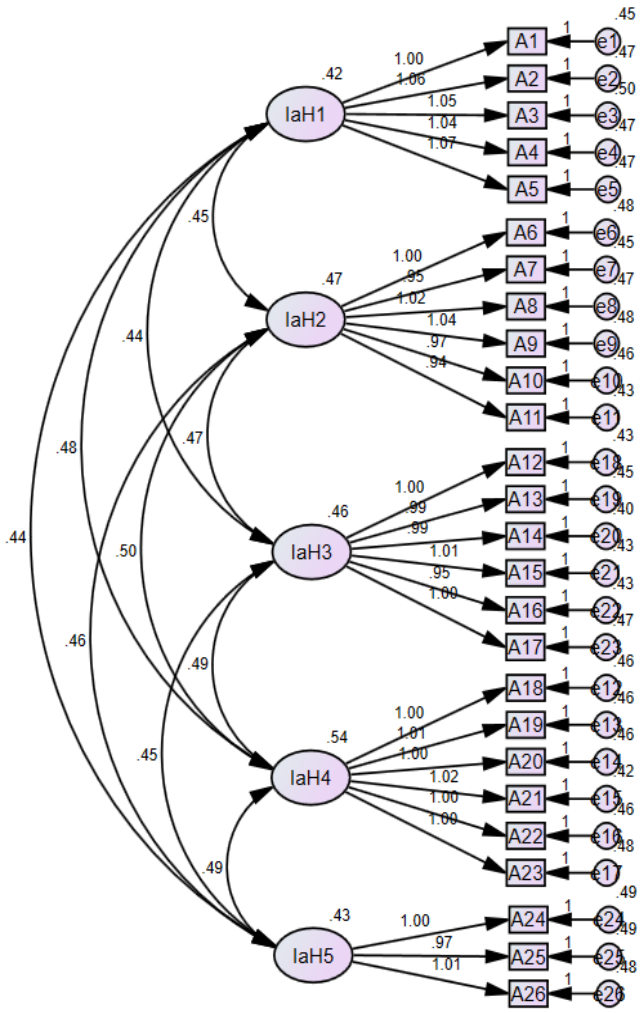
Model Fit Internationalization at Home Scale

Goodness of Fit index	Cut of value	Results	Decisions
χ2		321.818	-
df		289	-
x2/df	＜5	1.114	Fit
CFI	＞0.9	.997	Fit
GFI	＞0.8	.962	Fit
AGFI	＞0.8	.954	Fit
NFI	＞0.8	.967	Fit
SRMR	＜0.08	.019	Fit
RMSEA	＜0.08	.013	Fit

Note: n=625

Figure 2

Model Diagram



Note: IaH1=Curriculum and Programs, IaH2=Teaching/Learning Process, IaH3=Research and Scholarly Activities, IaH4=Co-curricular/Extra-curricular Activities, and IaH5=Liaison with Local Community-Based Cultural/Ethnic Groups.

Convergent Validity for IaH Scale

Hair (2009) states that a reference value exceeding .700 for the CR signifies strong validity. In the IaH scale presented in Table 6, all CR values exceed .700, indicating strong validity and confirming that the measurement model has good convergent validity.

Table 6

Convergent Validity for Internationalization at Home Scale

Item	Standardized factor loadings	t	SE	CR
Factor 1				
1	.698	17.328	.061	.831
2	.710	17.321	.061	
3	.698	17.037	.062	
4	.706	17.229	.061	
5	.711	17.334	.061	
Factor 2				
6	.705	17.278	.058	.856
7	.697	17.104	.056	
8	.714	17.509	.058	
9	.716	17.560	.059	
10	.699	17.147	.056	
11	.701	17.187	.054	
Factor 3				
12	.717	17.865	.056	.861
13	.707	17.532	.057	
14	.728	18.068	.055	
15	.719	17.840	.056	
16	.699	17.350	.055	
17	.706	17.520	.057	
Factor 4				
18	.738	18.827	.053	.878
19	.737	18.745	.054	
20	.735	18.676	.054	
21	.758	19.309	.053	
22	.736	18.704	.054	
23	.730	18.530	.054	
Factor 5				
24	.686	16.737	.058	.726
25	.674	16.403	.059	
26	.694	16.846	.060	

Note: n=625.

Discussion and Conclusion

This study aims to develop a model and, in turn, create and validate a scale for quantitative research on IaH activities in higher education institutions. For this purpose, two primary research objectives have been established. The primary objective is to create a working definition of IaH and to evaluate the level of IaH development in higher education institutions based on the IaH activities they undertake. A three-dimensional theoretical model has been developed based on summaries of IaH theory and activities presented by Beelen & Jones (2015), the framework proposed by Knight (2021), and actual IaH activities conducted in Jiangsu, China.

The second research objective is to develop an IaH scale and evaluate its practical utility. Based on expert reviews and exploratory factor analysis (EFA) results from the pre-test, the IaH scale comprises five dimensions: curriculum and programs, teaching/learning process, research and scholarly activities, co-curricular/extracurricular activities, and liaison with local community-based cultural/ethnic groups. The exploratory factor analysis reveals a cumulative explained variance of 72.810%. The pre-test included a review of the project design through project analysis, showing that the performance of the IaH scale met the anticipated standards. All questions effectively addressed the five dimensions of IaH, with factor loadings ranging from .697 to .862 (Guadagnoli & Velicer, 1988; Kaiser, 1960). We observed significant positive correlations between the questions and the measurement objectives, as well as notable differences across various groups (correlation between each item and the total score: .478–.724, $p < .001$; C.R.: 31.153–39.292, $p < .001$) (Wu, 2009).

This study developed a model for implementing IaH activities in higher education institutions in Jiangsu and created an IaH scale based on this model, demonstrating strong structural validity, content validity, and fit indices. This model and scale contribute positively to theoretical research on IaH. This study suggests using the IaH scale as a quantitative assessment tool to explore the relationship between the effectiveness of participating in study abroad programs and different IaH programs. The results may help HEIs deploy different, more suitable programs for students and budget controls. The scale can also be used to assess college

students' competence in participating in IaH activities or programs.

Undoubtedly, this research was conducted in Jiangsu, but the scale was developed based on international research findings and has been evaluated by experts from different nationalities and educational backgrounds. Compared with the IaH activities mentioned in the literature review, the scale included all of them. This study suggests that the scale could apply to a wide range of situations.

Like all research, this study does have limitations. This provides a substantial framework and empirical evidence for applying IaH in Jiangsu, China. Although it provides valuable insights, it is important to acknowledge certain limitations.

The data collection relied solely on a single survey method, specifically a questionnaire. While this approach provides valuable insights, it may also limit students' understanding of their experiences and perceptions of IaH and may be biased by self-report data. Future research would greatly benefit from incorporating mixed methods, such as interviews or focus groups, to enhance the analysis's comprehensiveness.

Secondly, the study sample was limited to college students in Jiangsu, China, and did not account for variations in institutional types. Differences between public universities and private colleges, as well as regional disparities, may significantly influence the accessibility and implementation of IaH activities. Including a broader range of institutions in future studies would enhance the generalizability of the results.

The study was unable to differentiate among the students' academic disciplines. There may be notable differences in IaH participation and perceived benefits among students in science, technology, engineering, and mathematics (STEM) fields compared with those in the social sciences or humanities. It would be beneficial for future research to examine these disciplinary differences more closely better to understand their impact on students' engagement with IaH.

This study does not account for emerging trends, such as the integration of artificial intelligence (AI) into internationalization efforts, given the rapid evolution of technology and education. Future research should consistently revise the IaH framework to include advancements in educational technology and strategies for global engagement. By acknowledging these limitations, future research can improve and expand the understanding of IaH and its impact on students' IC and employability.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. An ethical consideration in this study was that participation was entirely optional.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contribute to this study.

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