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Influences of cultural capital and internationalization on global competence in higher education: a systematic literature review

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Introduction: In an increasingly global economy, the global competence of students in higher education is a critical area of importance. The purpose of the study was to explore the research on factors that influence an individual's global competence in both international and Chinese contexts.

Methods: Under the umbrella of cultural capital theory and Internationalization, a systematic literature review analyzed and synthesized the empirical studies of global competence from 2013 to 2022.

Results: This research revealed that students with higher cultural capital backgrounds obtain more educational opportunities and further exhibit better global competence achievement. Internationalization abroad is a direct and practical pedagogy for global competence acquisition, reflected in student and faculty mobility. Internationalization opportunities in an individual's home country catalyze global competence.

Conclusion: These results highlight that students who have a lower capital background or few opportunities for mobility can reap the potential benefits of global competence attainment through involvement in domestic educational activities.

KEYWORDS

higher education, cultural capital, internationalization abroad, internationalization at home, intergroup contact, global competence

1 Introduction

In the 21st century, global competence (GC) has been nurtured by myriad educational stakeholders, policymakers, and organizations, such as Project Zero at Harvard University (Reimers, 2009), the Global Citizenship Education initiative from the United Nations Educational, Scientific, and Cultural Organization (The United Nations Educational, Scientific and Cultural Organization, 2015), a GC assessment in the Program for International Student Assessment (PISA) 2018 (Organization for Economic Cooperation and Development, 2018), and the Center for Student Global Competence Development at Tsinghua University (2016). These organizations consider GC education an essential initiative for promoting globally ready generations to work and be responsible citizens in a progressively internationalized, multicultural world. Furthermore, GC empowers students to be better employees, residents, and citizens who can live harmoniously in diverse societies, adapt to changing employment, use mass media efficiently and responsibly,

TABLE 1 Review of global competence definition and assessment in literature.

Citation	Definition	Dimension and assessment
Hunter's (2004) global competence checklist	Having an open mind while actively seeking to understand cultural norms and expectations of others, leveraging this knowledge to interact, communicate and work effectively outside one's environment.	• *Knowledge* of world events and foreign cultures. • *Skills* to cooperate cross-culturally and adaptability in a cross-cultural environment. • *Attitudes* toward cultural diversity and preparedness to involve in the diversity.
Global competence aptitude assessment (Global Leadership Excellence, 2018a)	Having flexible, respectful attitudes, including self-perspective, and applying knowledge of the historical, geographic, and societal factors that influence cultures in order to interact and build relationships with people around the world effectively.	• *Internal readiness aptitudes* (self-awareness, open-mindedness, attentiveness to diversity, risk taking). • *External readiness aptitudes* (global awareness, historical perspective, intercultural capability, collaboration across cultures).
Global competence assessment in PISA 2018 (Organization for Economic Cooperation and Development, 2018)	Capable of examining local, global, and intercultural issues, understanding and appreciating different perspectives and world views, interacting successfully and respectfully with others, and taking responsible action toward sustainability and collective well-being.	• *Knowledge* about global sustainable issues (self-efficacy, awareness). • *Skills* (flexibility or adaptability in dealing with challenging situations). • *Attitudes* (openness and intercultural communicative awareness). • *Values* (attitude toward immigrants and learning about different cultures; respect for people from other cultures).
Tsinghua University (2016)	The ability to learn, work and live sustainably together in global, international, and intercultural contexts.	• *Cognition:* knowledge of global issues and foreign languages to communicate with people from different cultures. • *Individual:* responsibility and confidence. • *Interpersonal relationship:* skills of communication and cooperation and attitudes of openness and respect.

and support sustainability goals (Matei, 2020). Therefore, globalized postsecondary education calls for pedagogical efforts to foster GC in students. Previous studies showed that an individual's cultural capital background (Bourdieu, 1986) connects to the relationship between students' family/school background and their academic opportunity and/or success in higher education (Xiang, 2021; Yu, 2021). Cultural capital background may also influence GC learning in higher education (Andrews, 2021). Moreover, the Internationalization framework built by American Council on Education (2023) catalyzes GC acquisition, including pedagogies such as Internationalization abroad (e.g., students and faculty mobility) and Internationalization at home (e.g., internationalization curriculum, co-curriculum, and extra-curriculum). However, the literature has yet to systematically report on GC acquisition influenced by students' cultural capital background and Internationalization pedagogies in postsecondary education. Addressing the gap, this systematic literature review explores the research on factors that influence an individual's Global Competence in both international and Chinese contexts.

1.1 Definition of global competence

Butler's (1978) definition of competence drew a foundational structure of GC. According to Butler (1978), competence is a mixture of knowledge, skills, values, and attitudes to address complex cultural demands in societies. *Knowledge* refers to the informational basis or strategies (e.g., who, what, when, where, how, and why) for a skill. *Skill* stands for the capability to achieve a purposeful task with ease. *Values* mean concepts or principles of particular importance and worth to the individual, group, community, society, or a culture. Values are the foundation for attitudes. *Attitude* consists of affection (i.e., emotion, ways of thinking) and behavior (i.e., motivation, personality) to react to a particular value or purpose. Competence-based education aims

to provide learning experiences designed to lead to the attainment of a group of consensual competencies.

The concrete elements of GC are derived from knowledge, skill, value, and attitudes built on the structure of competence (Butler, 1978). However, more consensus is needed on what GC should mean for students in higher education (Zhou, 2022). Table 1 outlines the definitions of GC from various institutions and scholars coupled with the dimensions of GC assessment.

1.1.1 Global competence checklist

Using a Delphi technique, Hunter (2004) generalized an agreed-upon GC definition from 42 human resource executives at multinational enterprises and 133 international educators working in higher institutions. Hunter (2004) defined GC as "having an open mind while actively seeking to understand cultural norms and expectations of others, leveraging this knowledge to interact, communicate and work effectively outside one's environment" (p. 81). Established on the definition and previous literature, Hunter (2004) provided a Global Competence Checklist with three dimensions: (a) knowledge of world events and foreign culture, (b) skills to cooperate cross-culturally and adapt in a cross-cultural environment, and (c) attitudes toward cultural diversity and preparedness to engage in the diversity. Hunter's (2004) Global Competence Checklist developed GC from a definition to an embryonic assessment (Todd, 2017).

1.1.2 Global competence aptitude assessment

Built on Hunter's (2004) work, Global Competence Associates. (n.d.), a pedagogical consulting corporation, launched the Global Competence Aptitude Assessment (GCAA) for use by the education and nonprofit domains in 2009. Global Leadership Excellence (2018a) aimed to reach a worldwide agreement on the definition of GC and presented on their website "having flexible, respectful attitudes, including self-perspective, and applying knowledge of the historical,

geographic and societal factors that influence cultures in order to effectively interact and build relationships with people around the world" (Global Leadership Excellence, 2018a).

The reliability and validity of GCAA have been verified in more than 40 countries on six continents. The GCAA assessed GC of students from high school to postsecondary institutions in both private and public institutions (Global Leadership Excellence, 2018a), measuring "internal readiness aptitudes (i.e., self-awareness, open-mindedness, attentiveness to diversity, risk-taking) and external readiness aptitudes (i.e., global awareness, historical perspective, intercultural capability, collaboration across cultures)" (Todd, 2017, p. 21). To minimize bias in self-evaluation, the GCAA applies a triangulated assessment method, including scenario-based, behavioral-based, and Likert-scale self-appraisal items (Global Leadership Excellence, 2018b). Niehaus (2012) argued the GCAA could assist participants in finding methods to promote GC by identifying their disadvantages and advantages. With this merit, Morgan and King (2013) regarded the GCAA as a good pre- and post-assessment tool, and Kaushik et al. (2017) applied the GCAA to assess 1st-year students' GC level and remeasured them as seniors.

1.1.3 Global competence assessment in PISA 2018

Global competence was defined as "globally competent individuals can examine local, global and intercultural issues, understand and appreciate different perspectives and world views, interact successfully and respectfully with others, and take responsible action toward sustainability and collective well-being" (Organization of Economic Cooperation and Development, 2019, p. 166). PISA 2018 measured GC from four perspectives, adding onto Hunter's (2004) work: (a) knowledge about global issues (self-efficacy, awareness), (b) value (attitude toward immigrants and learning about different cultures; respect for people from other cultures), (c) skills (flexibility or adaptability in dealing with challenging or difficult situations), and (d) attitude (openness and intercultural communicative awareness; Organization of Economic Cooperation and Development, 2019). Nonetheless, GC assessment in PISA 2018 was designed for a limited population, adolescents at approximately 15 years old.

1.1.4 Dimensions of global competence from Tsinghua University

Having been a leading university in China for over a century, Tsinghua has developed as a spirited educational heartland in vibrant multicultural academic disciplines and fields to sustain pedagogical China's modernization. Tsinghua is the benchmark for the education of GC in China. With the goal of sustainability, the Tsinghua Global Strategy was launched to promote globally competent students in 2016 (Tsinghua University, 2016). Tsinghua characterized GC as "the ability to learn, work and live sustainably together in global, international, and intercultural contexts" (Zhong et al., 2022, P. 564). Tsinghua featured the process of cultivating in three dimensions: (a) *cognition* signifies knowledge of global issues and using a foreign language to communicate with people from different cultures; (b) *individual* refers to responsibility and confidence; (c) *interpersonal relationship* stands for skills of communication and cooperation and attitudes of openness and respect (Song and Li, 2020).

Although different authors and institutions described GC from multifarious dimensions, Zhou and Green (2022) summarized two principal goals of GC in postsecondary education: career GC and civic

GC. Career orientation refers to preparing students with career readiness, like collaborating and facilitating business in a multicultural context. Civic orientation aims to cultivate global citizens responsible for sustainability and social justice, equity, and inclusion (Zhou, 2022).

Reviewing the definitions and assessment, GC contributes to students' employability for life-long career (Hunter, 2004; Global Leadership Excellence, 2018a) while promoting responsible global citizenship and social sustainability (Organization for Economic Cooperation and Development, 2018). The two orientations are indispensable to delineating the panorama of student lives. The dimensions of GC from Tsinghua University (2016) combined the two orientations.

Although the research on GC has been conducted in a variety of contexts, no literature reviews currently exist that focus on reviewing empirical research on global competence-based education in both international and Chinese contexts. Therefore, the purpose of this literature is to understand more fully the research on factors that influence an individual's global competence. Specifically, this systematic literature review focuses on the empirical research associated with factors of individual's cultural capital background and universities' Internationalization pedagogies, which influence global competence-based education in both international (research sample recruited from international students other than Chinese students) and Chinese (research sample recruited from Chinese students) university settings. This systematic review ascertains sample populations, research methodologies, and main findings in the research in the past 10 years.

1.2 Research questions

Research question 1: What are trends in populations included in the research literature on influencing factors of GC in international and Chinese contexts?

Research question 2: What methods are used in the research literature on influencing factors of GC in international and Chinese contexts?

Research question 3: What are the measures associated with the research literature on influencing factors of GC in international and Chinese contexts?

Research question 4: What are the main findings associated with the research literature on factors of GC influenced by an individual's cultural capital background in international and Chinese contexts?

Research question 5: What are the main findings associated with the research literature on factors of GC impacted by universities' Internationalization pedagogies in international and Chinese contexts?

2 Methods

The literature search investigated pedagogies for cultivating students' GC in higher education, especially in the Chinese context.

To ensure the quality of the revision process and construct a nonbiased and representative sample of published studies, the study followed the Preferred Reporting Items for Systematic Reviews (PRISMA) guidelines. The review protocol was organized into three steps: (a) identifying search terms, (b) establishing inclusion and exclusion criteria, and (c) searching procedures.

2.1 Search string

Studies for selection in this review started with an extended manual keyword search in articles' titles, abstracts, and provided keywords in the three most highly valued databases for social science academia such as Scopus, Web of Science, and Education Resource Information Center (ERIC). For a better understanding Chinese context, the search was also conducted in China National Knowledge Infrastructure (CNKI), a valuable database in Chinese academia. Addressing the topic of this research interest, the search keywords were categorized into two categories related to "global competence" AND a higher education-related substring (e.g., "higher education" OR "university" OR "college" OR "postsecondary" OR "tertiary" OR "undergraduates"). Then, the two strings were applied to search peer-reviewed academic journal articles written in English and Chinese between January 2013 and January 2023.

The first search yielded 136, 53, and 70 original articles sequentially from Scopus, Web of Science, and ERIC databases. After removing duplicates and repeats from previous research, article numbers remained at 75, 20, and 18, respectively, for Scopus, Web of Science, and ERIC (see Table 2). A second search used the strings in Chinese "全球胜任力" OR "国际素养," referring to "global competence," and "高等教育," "高校," or "大学生," referring to "higher education" in CNKI. This second search yielded 38 peer-reviewed Chinese articles with no duplicates or repeats.

2.2 Inclusion and exclusion criteria

Articles eligible for inclusion were: (a) empirical quantitative and qualitative studies; (b) stick to the keyword "global competence;" and (c) potential influencing factors related to cultural capital background and Internationalization pedagogies. First, this literature review only included empirical studies; others (e.g., review work) were excluded. Next, scholars have applied multifarious terminologies to conceptualize the notion of GC, such as global citizenship, global leadership, intercultural competence, intercultural communicative competence, transcultural competence, intercultural sensitivity, and cross-cultural understanding (Deardorff and Jones,

2012; Todd, 2017). To narrow the topics, this study centers on global competence containing two orientations (i.e., career and civic). Thus, the results included only can be "global competence" in English, and "全球胜任力" or "国际素养" in Chinese. Others were excluded. Moreover, this study aimed to understand the influence of cultural capital and internationalization factors on GC achievement. Hence, other factors were excluded, such as students' personality traits (Cao and Meng, 2020c).

2.3 Search procedure

After removing duplicates, the first stage of coding comprised screening using titles and abstracts with the inclusion and exclusion criteria. Manuscripts were included liberally at this stage so as not to exclude a relevant study. A total of 48 studies were reviewed in full text at the second stage. As reflected in Table 2, 18, 8, 14, and 8 articles remained, respectively, in Scopus, Web of Science, ERIC, and CNKI databases. Figure 1 demonstrates the procedures by which studies sampled in the preliminary inclusion process were systematically refined, resulting in the ultimate sample selected in this literature review. Last, 26 selected manuscripts were analyzed for adherence to quality indicators specific to their respective correlational (Thompson et al., 2005) and qualitative (Brantlinger et al., 2005) methodologies. The subsequent section presents the results of the quality analysis.

3 Results

A total of 26 articles met the inclusion criteria for this systematic literature review. Table 3 summarizes the studies included in this review along with study attributes (i.e., publication year, location, and sample size), participants' demographic information (i.e., gender, degree, and field of study), and methodologies and influencing factors of global competence (GC).

3.1 Research question 1: what are trends in populations included in the research literature on influencing factors of GC in international and Chinese contexts?

3.1.1 Studies by locations and population

The 26 manuscripts used in the literature review were distributed across three continents -- North America, Europe, and Asia. Of all the articles, seven out of 26 articles recruited participants other than

TABLE 2 Literature search overview.

Search	Database	Initial number	Duplicates and repeats removed	Remaining original, relevant articles
1	Scopus	136	75	18
2	Web of Science	53	20	8
3	ERIC	70	18	14
4	CNKI	38	38	8
Totals		297	151	48

FIGURE 1
Screening and review procedure.
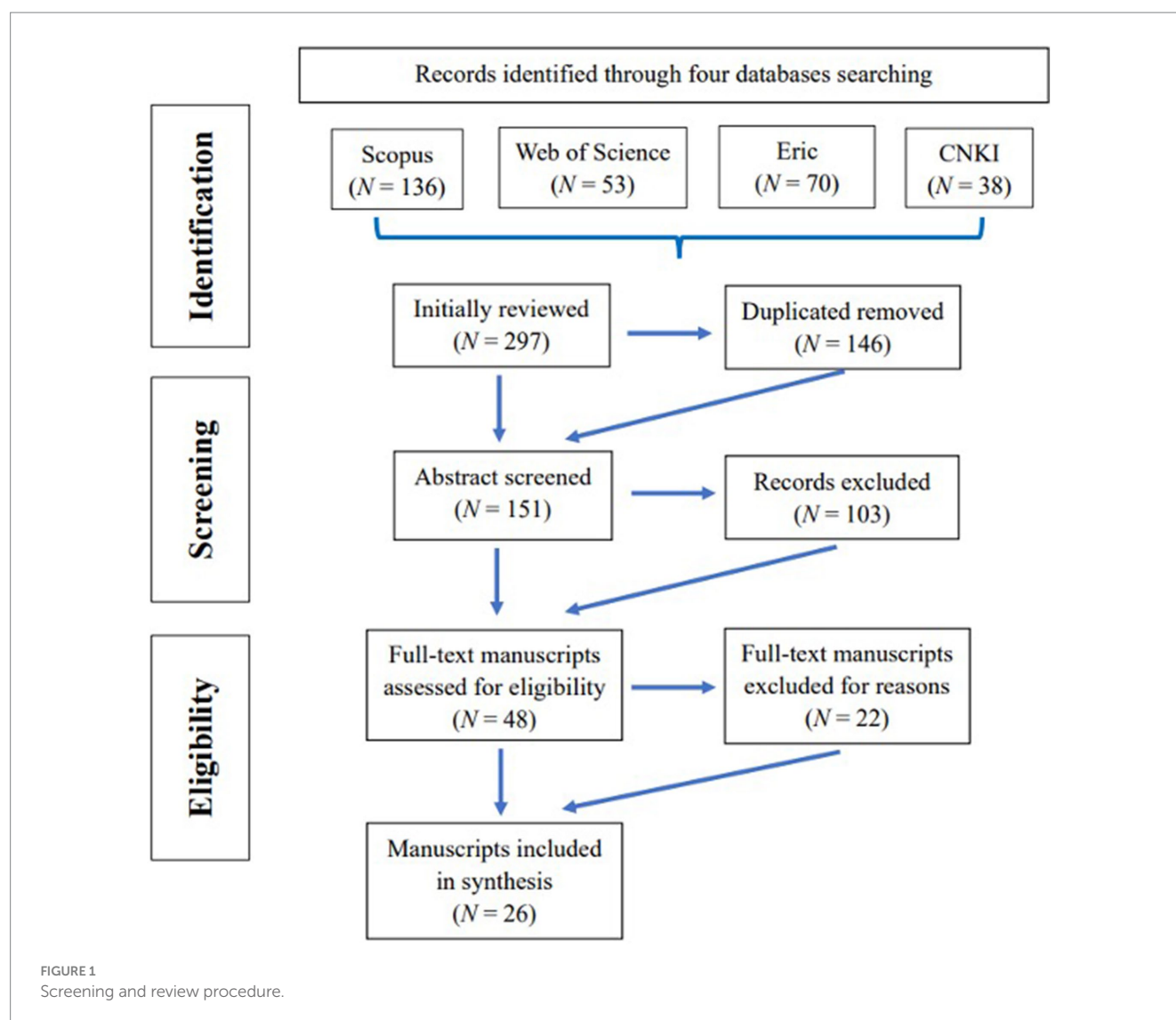
Chinese students, with three studies in the United States, one study, respectively, in Canada, Spain, Romania, and Singapore, and one study in the United States and South Korea. The remaining 19 articles recruited Chinese students as participants. Among those 19 articles, 11 articles were written in English, and eight articles were published in Chinese.

The sample size was reported in 21 out of 26 manuscripts. The total population across those 21 studies was 13,774. Seven studies reported 707 (5.13%) international participants other than Chinese students in six countries (i.e., Canada, United States, Romania, Spain, Singapore, and South Korea). The largest population of participants was in Romania ($N = 310$), and the smallest sample size was in Canada ($N = 14$).

Of the total population ($N = 13,774$), 13,067 students (94.87%) were reported in studies focused on Chinese participants. A total of eight studies included a sample of 12,365 Chinese mainland students (89.77%) in local universities distributed across seven cities (i.e., Beijing, Nanjing, Changchun, Suzhou, Nantong, Weifang, and Xuzhou). Three studies recruited 595 Chinese international students studying in Belgium (4.32%). Two studies reported 34 students from Hong Kong (0.25%). Three studies included 69 U.S. students (0.50%)

and four Swedish students (0.03%) who worked with Chinese students to develop GC.

3.1.2 Demographic information

Gender data were reported by 16 of the 26 manuscripts. Out of 10,615 participants in these 16 studies, 5,208 (49.1%) were male students, and 5,407 (50.9%) were female students. Out of 383 students in the five studies in international contexts, there were twice as many female students ($N = 263$) as male students ($N = 120$). In the Chinese context, 11 studies identified the gender of the participants, reflecting a total number of 10,232 participants. The numbers of male and female participants were similar, respectively 5,088 and 5,144.

3.1.3 Degree and fields of study

A total of 14 studies detailed the education levels of 13,109 participants scattered among Chinese local students, Chinese international students, and students in Hong Kong, Romania, United States, and Sweden. Undergraduate students accounted for the largest population (8,855, 67.55%), followed by graduate students (3,656, 27.88%) and doctoral students (594, 4.53%). A tiny group of

TABLE 3 Results of literature review.

Citation	Sample size University location	Gender	Degree Fields of study	GC scale GC level	Methodology	Cultural capital factors	Internationalization factors
Studies in the international context							
Alfaro and Paz-Albo (2021)	203 college students from Universidad Complutense de Madrid (Spain)	46 (22.7%) males 157 (77.3) females		Self-created *ad hoc* questionnaire based on OECD scale	- Independent samples *t*-tests	- Foreign language proficiency	- Student long-term mobility
Butum et al. (2020)	310 students from two Romanian universities		- Bachelor; - Social and economic		- Independent samples *t*-test - Pearson correlation		- Faculty mobility - Extensive English courses - Subjects taught in English - Preparation for international employability - Interconnection with local multinational communities/companies
Chong et al. (2022)	83 students from a Singapore university	43 (51.8%) males 40 (48.2) females	- Business, social sciences, accountancy, economics, tech/management		- 3 Case studies		- Student short-term mobility to United States/Germany/South Korea.
Doerr (2020)	4 students from an American university	2 (50%) males 2 (50%) females	- Biochemistry, economics, international business, a double major in psychology/ marketing		- 2 Case studies.		- Minority immigrant students mobility
Kang et al. (2018)	51 students (27 students from an American university and 24 students from a Korean university)	6 (11.8%) males 45 (88.2%) females	Fashion industry	A three-dimension self-created GC survey	- Multiple regression - *t*-tests	- In-person foreign acquaintances - Mediated contact	- Virtual collaboration with foreign students in class
Ndubuisi et al. (2022)	14 students from a Canadian university		- Engineering		- Interview		- Virtual collaboration with foreign students in class
Schenker (2019)	42 students from an American university	23 (54.8) males 19 (45.2%) females		GCAA	Paired samples *t*-test		- Student short-term mobility
Studies in the Chinese context (written in English)							
Cao and Meng (2020a)	210 Chinese International students from Belgian universities	87 (41.4%) females 123 (58.6%) males	- 26 (12.4%) bachelors - 129 (61.4%) masters - 55 (26.2%) doctorates - 133 (63.3%) social sciences & humanities - 63 (30%) physics & engineering - 14 (6.7%) life sciences	Hunter's (2004) scale validated by Meng et al. (2018)	- SEM	- In-person foreign acquaintances - Online foreign acquaintances	
Cao and Meng (2020b)	555 local Chinese students from Chinese universities	367 (66.1%) males 188 (33.9%) females	- Bachelor - 423 (77.8%) natural sciences - 132 (23.7%) social sciences and humanities	Hunter (2004)	- SEM	- Mediated contact	

(Continued)

TABLE 3 (Continued)

Citation	Sample size University location	Gender	Degree Fields of study	GC scale GC level	Methodology	Cultural capital factors	Internationalization factors
Commander et al. (2016)	65 (30 students from a university in Hong Kong and 35 students from an American university)	9 (13.8%) males 56 (86.2%) females	- Bachelor		- Content analysis		- Virtual collaboration with foreign students in class
Jiang et al. (2023)	713 local Chinese students from Suzhou, Nantong, Weifang, Xuzhou	260 (36.47%) males 453 (63.53%) females	- Master - Doctorate - Medicine	Adapted from GSGCS (Liu et al., 2020)	- Multiple regression	- Gender - Parents' highest degree - -Grade	- School's Internationalization concept/system - Faculty's international development - International academic engagement
Leung et al. (2017)	8 (4 from a university in Hong Kong and 4 from a Swedish university)		- Doctorate - Nursing		- Reflective journals - Focus group interviews		- Virtual collaboration with foreign students in class
Li (2013)	68 (34 from a Chinese university and 34 from an American university)		- Bachelor - Master - Business	Self-created survey	- Paired comparison *t*-tests		- Virtual collaboration with foreign students in class
Li and Xu (2016)	2,50 Chinese local students from Beijing	1,258 (50.28%) males 1,244 (49.72%) females	- Bachelor	Self-created survey	- Causal inference analysis		- Intercultural training/internship
Liu et al. (2020)	1,618 local Chinese students from Beijing	732 (51.7%) males 683 (48.3%) females	- 1,168 (82.4%) masters - 249 (17.6) doctorates - 570 (40.4%) engineering - 542 (38.4%) social sciences - 198 (14%) sciences - 76 (5.4%) humanities & arts - 26 (1.8%) Others	Creating GSGCS	- Exploratory factor analysis - One-order CFA - Two-order model - Hierarchical CFA model		
Meng et al. (2017a)	2,695 local Chinese students from Beijing, Nanjing, Changchun	1,204 (44.7%) males 1,491 (55.3%) females	- Bachelor - 951 (35.3%) physics and engineering - 1,428 (53%) social sciences and humanities - 310 (11.5%) life sciences	Hunter's (2004) scale validated by Grudzinski-Hall (2007)	- ANOVA - Hierarchical multiple regression	- Gender - High school experience - University types - University locations - Fields of studies	- Preparation for international employability - In-person contact with foreigners in class - In-person contact with foreigners in campus activities
Meng et al. (2017b)	179 Chinese International students from Belgian universities	93 (51.7%) males 86 (48.3%) females	- 25 (13.9%) bachelors - 67 (37.2%) masters - 88 (49%) doctorates - 87 (48.3%) physics and engineering - 53 (29.4%) social sciences and humanities - 40 (22.2%) life sciences	Hunter's (2004) scale validated by Grudzinski-Hall (2007)	- ANOVA - Hierarchical multiple regression	- Foreign language proficiency - The number of foreign countries visited - Mediated contact	

(Continued)

TABLE 3 (Continued)

Citation	Sample size University location	Gender	Degree Fields of study	GC scale GC level	Methodology	Cultural capital factors	Internationalization factors
Meng et al. (2018)	206 Chinese International students from Belgian universities	87 (42.2%) males 119 (57.8%) females	- 31 (15%) bachelors - 94 (45.6%) master - 77 (37.4%) doctorates - 2 (1%) post-docs - 2 (1%) visiting scholars - −91 (44.2%) physics and engineering - 76 (36.9%) social sciences and humanities - 39 (18.9%) life sciences	Hunter (2004)	SEM	- Foreign language proficiency	
Studies in the Chinese context (written in Chinese)							
Cen and Yang (2022)	1,478 local Chinese students from Eastern Coastal in China	919 (62.2%) males 559 (37.8%) females	- Master - 964 (65.22%) engineering - 90 (6.09%) science - 126 (8.53%) life science - 298 (20.16%) social sciences and humanities	Adapted from GSGCS (Liu et al., 2020)	- Logit regression	- The number of foreign countries visited	- Discussions on global events/issues - Literature in the fields of study written in foreign language - Global issues workshops - International academic engagement
Fang et al. (2018)	Chinese students traveling from Beijing to the U.S.				1 case study		- Student abroad mobility
Hu and Jing (2018)	Chinese students traveling from Beijing to Kenya, Ethiopia, Iran, and UAE				4 case studies		- Student abroad mobility
Liu and Cao (2020)					Content analysis of 189 overseas exchange programs		- Student mobility
Liu and Wu (2015)				Self-created survey based on Hunter (2004) and Organization for Economic Cooperation and Development (2005)	- SEM model fit		-Development of GC scale for undergraduates based on Hunter (2004)
Song and Li (2020)	124 Chinese local students from Beijing	72 (58.1%) males 52 (41.9%) females	- Master		- Mixed methods (interview and descriptive data)		- Global issues workshops - Optional courses related to global issues
Zhang (2020)	Chinese students traveling from Hangzhou to Indonesia, Serbia, United Arab Emirates				3 case studies		- Student mobility
Zhang and Wen (2018)	2,646 freshmen from a research university in China		- Bachelor	Hunter (2004)	- Ordinary least squares - Regression analysis	- High school experience - Employment expectation - Family origin - Parents' highest degree - Parents' job position	

post-docs (2, 0.02%) and visiting scholars (2, 0.02%) also participated in the GC research.

A total of 16 manuscripts detailed participants' fields of study and majors. Internationally, five studies categorized the majors of participants into seven domains (i.e., social sciences, accountancy, technology biochemistry, fashion industry, psychology, and engineering). The other 11 Chinese studies included six domains of majors (i.e., physics and engineering, social sciences and humanities, life sciences, natural sciences, humanities and arts, and medicine).

3.2 Research question 2: what methods are used in the research literature on influencing factors of GC in international and Chinese contexts?

The number of quantitative research articles exceeded that of qualitative research articles. Of the total studies, 14 used quantitative, 9 used qualitative methods, and 1 used mixed methods. Two additional studies focused on GC scale development.

In the international context, 3 of 7 studies applied qualitative methods, including case studies and interviews. A total of 4 of 7 utilized quantitative methods (e.g., independent samples t-tests, paired sample *t*-tests, Pearson correlation, multiple regression).

In the Chinese context, 10 research studies used quantitative methods to address GC predictors, two leveraged a one-way analysis of variance (ANOVA) and hierarchical multiple regression (HMR), and three used structural equation modeling (SEM). Researchers of the five remaining studies used one of the following methods: logit regression, ordinary least squares regression, multiple regression, paired comparison *t* tests, and causal inference analysis. Regarding the six studies in which researchers applied qualitative methods to understand the Chinese pedagogical initiatives to cultivate GC, two applied a content analysis method, three were case studies, and one used reflective journals and focus group interviews to gather information. Researchers in merely one out of the 26 studies employed mixed methods. As for the two studies that included GC scale development, Liu and Wu (2015) applied SEM model fit to validate their GC scale for Chinese undergraduates, and Liu et al. (2020) used exploratory factor analysis, one-order confirmatory factor analysis (CFA), two-order CFA, and hierarchical CFA to create a GC scale for Chinese graduate student.

3.3 Research question 3: what are the measures associated with the research literature on influencing factors of GC in the international and Chinese contexts?

3.3.1 Global competence scales

The aim of GC assessment is to "gather data on how well students are prepared to examine contemporary issues of local, global, and intercultural significance and live in multicultural societies" (OECD/ Asia Society, 2018, para. 5). However, little consensus has been reached on GC scales globally.

For the three quantitative studies in the international context, Alfaro and Paz-Albo (2021) designed an *ad hoc* questionnaire for

students to self-assess based on the 2019 OECD framework for GC. The questionnaire consisted of seven categories: (a) intercultural communication awareness, (b) global mindedness toward issues of poverty and environment, (c) interest in different cultures, (d) adaptability in an unusual situation and new cultures, (e) perspective taking from other people, (f) self-efficacy regarding global issues, and (g) awareness of global issues. Schenker (2019) applied Global Competence Aptitude Assessment (GCAA; Global Leadership Excellence, 2018a) to evaluate participants' GC before and after a short-term overseas program because GCAA is a good assessment for the paired *t* test. Kang et al. (2018) designed a three-dimension GC survey: (a) global attitude adapted from Cleveland and Laroche's (2007) scale, (b) intercultural communication skills based on Larke's (1990) scale, and (c) global knowledge developed by the authors to assess the students' knowledge of the other country's culture.

In the Chinese context, 12 studies applied a GC scale, and 10 of them reached a consensus on Hunter's (2004) Global Competence Checklist with three dimensions of GC (i.e., knowledge, skills, and attitudes). Four of these 12 studies validated Hunter's (2004) checklist to measure students' GC level (Meng et al., 2018; Zhang and Wen, 2018; Cao and Meng, 2020a,b). Nevertheless, Hunter (2004) only recruited native English participants. Grudzinski-Hall (2007) supplemented nine questions on Hunter's (2004) checklist to assess non-native English participants' language learning. In two of the 12 studies, researchers applied Hoffa's (2007) scale, adjusted some questions for practical use in a Chinese context, and validated the final survey in Chinese (Meng et al., 2017a,b).

Although Liu and Wu (2015) called their assessment an international competence scale, they developed their survey for Chinese undergraduates based on Hunter's (2004) checklist and global citizen conception built on *Definition and Selection of Key Competencies* (DeSeCo; Organization for Economic Cooperation and Development, 2005). The reliability and validity of Liu and Wu's (2015) survey have been tested through SEM model fit from a sample of students from five universities in Beijing. Liu et al.'s (2020) Graduate Students' Global Competence Scale (GSGCS)[4] tended to include two orientations of GC (career and civic) through adjusting 20 items that suited Chinese graduate students. For the items in the global career orientation, authors leveraged the Global Perspective Inventory (Braskamp et al., 2014), the GCAA (Hunter et al., 2006), the Global Competence Measurement Instrument (Li, 2013), the Global Competency Index Questions (Olson and Kroeger, 2001). Concerning civic orientation, the authors adapted the items from the Global Citizenship Scale (Morais and Ogden, 2011). Then, the authors designed 15 new items to describe the specific characteristics of GC for Chinese graduate students. After exploratory factor analysis (EFA), two items were removed. The final version of GSGCS included three dimensions: (a) knowledge (nine items), (b) skills (13 items), and (c) attitudes and values (11 items). Two of the 12 studies expanded on Liu et al.'s (2020) work assessing GC in Chinese graduate students (Cen and Yang, 2022; Jiang et al., 2023). Jiang et al. (2023) amended some items of the GC scale for medical graduates because of unique traits in the medical domain.

Researchers in two out of 20 studies created a survey to measure global attitudes, knowledge, and skills. Li (2013) designed 17 items for assessing three dimensions of GC. Li and Xu (2016) detailed three simple questions (one item for each dimension): (a) global knowledge (knowledge of a foreign language and foreign culture), (b) global skills

TABLE 4 Cultural capital factors influencing global competence.

Categories/Sub-categories	Citation
Demographic factors	
Gender	Jiang et al. (2023), Meng et al. (2017a), and Zhang and Wen (2018)
Geographic location/origin	Zhang and Wen (2018)
Parents' highest degree	Li and Xu (2016), Zhang and Wen (2018), and Jiang et al. (2023)
Parental job position	Zhang and Wen (2018)
Employment expectations	Zhang and Wen (2018)
Educational background	
High school experience	Meng et al. (2017a) and Zhang and Wen (2018)
Fields of studies	Meng et al. (2017a)
University types	Meng et al. (2017a)
University location	Meng et al. (2017a)
Global engagement	
Foreign language proficiency	Meng et al. (2017b), Meng et al. (2018), and Alfaro and Paz-Albo (2021)
Mediated contact	Meng et al. (2017b), Kang et al. (2018), and Cao and Meng (2020b)
Foreign acquaintances	
In-person foreign acquaintances	Meng et al. (2017b), Kang et al. (2018), and Cao and Meng (2020a)
Online foreign acquaintances	Cao and Meng (2020a)

(ability to read foreign-language references), and (c) global attitude (tolerance of a foreign culture).

3.4 Research question 4: what are the main findings associated with the research literature on factors of GC influenced by an individual's cultural capital background in international and Chinese contexts?

3.4.1 Cultural capital

Researchers of 10 out of 26 studies analyzed the associations between students' cultural capital factors and GC, two studies in the international context and eight in the Chinese context. The studies in the international context are noted in global engagement (Kang et al., 2018; Alfaro and Paz-Albo, 2021) and foreign acquaintances (Kang et al., 2018). Table 4 displays 13 factors categorized into four dimensions under the cultural capital theory (i.e., demographic factors, family background, and global engagement, and foreign acquaintances).

3.4.2 Demographic factors

Regarding demographic factors, five factors significantly impacted GC. They include gender, geographic location/origin, parents' highest degree, paternal job position, and employment expectations. Four manuscripts demonstrated a significant association between gender and GC. Specifically, male students exhibited higher GC than female students (Meng et al., 2017a; Jiang et al., 2023).

3.4.2.1 Geographic location

Zhang and Wen (2018) indicated that students from urban cities had better GC than students from rural places. Students living in cities, especially in provincial capitals, have the benefits of cultural capital, such as educational institutions, libraries, museums, and cultural and art venues. These city resources enrich students' exposure to internationalization and improve their GC.

3.4.2.2 Parent factors

The association between the parents' highest degree and GC was measured in three studies (Li and Xu, 2016; Zhang and Wen, 2018; Jiang et al., 2023). Findings underscored that the highest degree of parents positively predicted GC. Zhang and Wen (2018) explained that parents with higher degrees are more likely to be involved in students' academic development and GC cultivation. Zhang and Wen (2018) found that students whose fathers were civil servants scored the highest in GC. These students were followed by those whose fathers worked as senior professional and technical personnel, people in business, and middle- and low-professional and technical personnel. The group whose fathers were manual laborers scored lowest and significantly lower than the other four groups.

3.4.2.3 Employment expectations

Zhang and Wen (2018) classified employment expectations into public (e.g., government departments, state-owned enterprises), and nonpublic (e.g., private enterprises, transnational corporations) sectors. Findings showed that students interested in nonpublic sectors had better skills and attitudes toward GC than those expected to work in public sectors. The potential reason is the stereotypes of Chinese students in their occupational cognition. Students believe nonpublic sectors have higher GC requirements than public sectors. Therefore, students who intend to work in nonpublic sectors consciously improve their GC in various ways. However, with globalization extending from economics to education, GC has become essential for all global citizens (Organization for Economic Cooperation and Development, 2016, 2018).

3.4.2.4 Educational background

Regarding educational background, two Chinese studies found four factors that significantly impacted GC. They include high school experience, fields of study, university type, and university location.

3.4.2.5 High school experience

In Zhang and Wen's (2018) research on 3,646 first-year local students at a Chinese research university, the independent predictor of high school experience contained two dichotomous variables, high school type and fields of study. Students with high scores on the Zhongkao (China's high school entrance exam) can be selected for a leading high school. Zhang and Wen's findings demonstrated that participants from leading high schools had a better GC because selective high schools may provide better internationalized curricula. Moreover, high school students had to choose either science or art as one of the subjects on the Gaokao (i.e., National College Entrance Exam, [NCEE]). Students who specialized in science had lower knowledge of GC (Zhang and Wen, 2018). The result may be caused by the missing political, historical, and geographic content in science courses, which contributes to GC knowledge.

3.4.2.6 University type and location

Meng et al. (2017a) reported that students from top Chinese universities (i.e., 985 project universities) demonstrated higher level GC than those from less prestigious universities. Davey et al. (2007) explained that students from top universities amassed more knowledge for GC because they scored higher on the Gaokao, which assesses diverse subjects such as Chinese, a second language (mainly English), mathematics, physics, chemistry, geography, and history. Moreover, top universities attract a larger population of international students and scholars, which provides their local students with more opportunities for intercultural experiences (Meng et al., 2017a).

The location of universities significantly influenced GC. Meng et al. (2017a) argued that participants from Beijing (denoting first-tier cities of China) gained higher GC than students from Nanjing (representing second-tier cities of China) and Changchun (denoting third-tier cities of China).

3.4.2.7 Fields of study

Meng et al. (2017a) reported that undergraduates in social sciences and humanities disclosed having higher GC than physics/ engineering and life sciences students. Social sciences and humanities students may have a stronger motivation for studying abroad and better knowledge of global citizenship (Commission on the Abraham Lincoln Study Abroad Fellowship Program, 2005; Hoffa, 2007; Cao et al., 2016). Another potential reason is the difference in curriculum content. Humanities-related courses provide more humanity and social knowledge associated with GC (Meng et al., 2017a).

3.4.3 Global engagement

Two factors that related to international involvement positively impacted GC. They included foreign language proficiency and mediated contact.

3.4.3.1 Foreign language proficiency

In Spain, Alfaro and Paz-Albo (2021) revealed a more significant proportion of female students could speak foreign languages than male students. Moreover, foreign language proficiency positively influenced GC acquisition. In the Chinese context, Meng et al. (2017b) found that local language proficiency assisted Chinese international students' GC development. In addition, Meng et al. (2018) assessed GC of 206 Chinese international students studying in Belgium. Their SEM analysis showed that the proficiency of English and local language was positively associated with GC. Meanwhile, GC positively predicted students' "social connectedness" and "social and academic adaptation" (Meng et al., 2018: 131).

3.4.3.2 Mediated contact

The omnipresence of mass media provides extended mediated contact for immersion in information about the outgroup (Joyce and Harwood, 2014). Furthermore, viewers tend to use the information received on the mass media to deal with similar real-life issues (Schiappa et al., 2005).

In the international context, Kang et al.'s (2018) multiple regression findings indicated that global mass media strongly impact students' GC achievement and significantly increased knowledge of various cultures. Nonetheless, extensive knowledge of other cultures lessened the comfort level in communicating with people from different countries. Hence, Kang et al. (2018) called for virtual contact

with foreign peers through social media to assist educators in designing cross- and inter-cultural projects to decrease students' discomfort levels of communication with international students.

In the Chinese context, two manuscripts stated that mediated contact contributed to GC achievement. Berry (2005) defined acculturation as "the dual process of cultural and psychological change that occurs as a result of contact between two or more cultural groups and their individual members" (p. 698). Meng et al. (2017b) assessed participants' acculturation by measuring their interest in entertainment (e.g., movies, music) from Chinese culture (home acculturation) and foreign cultures (host acculturation). They divided the participants into four levels of acculturation: (a) marginalization (low identification with both home and foreign cultures), (b) separation (strong identification with home culture but low identification with foreign cultures), (c) assimilation (low identification with home culture but strong identification with foreign cultures), and (d) integration (strong identification with both home and foreign cultures). The findings revealed that students with assimilation and integration strategies had a higher level of GC than those at the separation and marginalization levels. In other words, mediated contact (e.g., exposure to foreign entertainment) tends to augment GC. Moreover, Cao and Meng (2020b) assessed two acculturation predictors (i.e., foreign TV series and movies). They found that a mediated connection indirectly positively influenced GC by decreasing intergroup anxiety when individuals were in contact with people in other cultures.

3.4.4 Foreign acquaintances

Foreign acquaintances are principally rooted in social networks or interpersonal relationships (Bourdieu, 1986). In modern society, foreign acquaintances can be made in person and online.

3.4.4.1 In-person foreign acquaintances

In the international context, Kang et al. (2018) declared that mass migration in the United States boosted opportunities for in-person contact with people from different cultures. This phenomenon had a positive influence on students' open attitudes toward differences and diversity and the improvement of intercultural communication skills.

Using data from 210 Chinese students in Belgium, Cao and Meng (2020a) found positive relationships between GC and foreign acquaintances with whom students can communicate or from whom students can get valuable advice. They added three subcategories of direct contact with culturally different students: vis-à-vis conversation, social activity or interaction, and friendship. Furthermore, Meng et al. (2017b) reiterated intergroup contact (i.e., the number of foreign friends and intimacy level with foreign friends) was positively associated with GC growth.

3.4.4.2 Online foreign acquaintances

Cao and Meng (2020a) assessed the frequency and duration of virtual contact with foreign friends through social media. Their findings demonstrated that online contact with foreign acquaintances positively predicted global skills but negatively predicted global attitudes (e.g., openness toward cultural diversity and activities) among students with few direct contact experiences. They explained that people who only connected virtually decreased motivation for

TABLE 5 Internationalization factors influencing global competence.

Internationalization factors	Citations
Internationalization abroad	
Student mobility	Meng et al. (2017b), Fang et al. (2018), Hu and Jing (2018), Schenker (2019), Doerr (2020), Liu and Cao (2020), Zhang (2020), Alfaro and Paz-Albo (2021), Cen and Yang (2022), and Chong et al. (2022)
Faculty mobility	Butum et al. (2020)
Internationalization at home	
Curriculum	
Intensive courses of foreign languages	Butum et al. (2020)
Subjects taught exclusively in foreign languages	Butum et al. (2020)
Literature or textbooks written in foreign languages	Cen and Yang (2022)
Courses related to global issues and Internationalization	Meng et al. (2017a), Song and Li (2020), and Cen and Yang (2022)
Preparation for international employability	Butum et al. (2020)
Co-curriculum	
In-person contact with foreigners in course learning	Meng et al. (2017a)
In-person contact with foreigners in campus activities	Meng et al. (2017a)
Virtual collaboration/discussion with foreign students in class	Li (2013), Commander et al. (2016), Leung et al. (2017), Kang et al. (2018), and Ndubuisi et al. (2022)
International activities in campus	Song and Li (2020)
Extracurricular activities	
Interconnection with local multinational communities/companies	Butum et al. (2020)
Joint/dual diplomas from foreign countries	Butum et al. (2020)
Recruiting new international cooperations	Butum et al. (2020)
Intercultural training or internship	Li and Xu (2016)
International academic engagement	Cen and Yang (2022) and Jiang et al. (2023)

face-to-face intercultural interactions and reduced global attitudes. Therefore, these findings can prompt educators to consider balancing students' motivation for communication when leveraging indirect contact through social media to lessen their discomfort levels for direct contact.

3.5 Research question 5: what are the main findings associated with the research literature on factors of GC impacted by universities' internationalization pedagogies in international and Chinese contexts?

3.5.1 Internationalization factors

Consistent with the internationalization framework (American Council on Education, 2023), this study categorized the internationalization factors into two areas: internationalization abroad (IA) and internationalization at home (IaH). Table 5 details two subcategories reflected in IA and IaH.

3.5.2 Internationalization abroad

Corresponding to American Council on Education (2023), international mobility consists of student mobility and faculty mobility. Researchers in eight of 26 addressed the contribution of student mobility to GC, and merely one study investigated the relationship between faculty mobility and GC.

3.5.2.1 Student mobility

The relationship between student mobility and GC was investigated in four international studies. Researchers demonstrated that long-term (e.g., one academic year, Alfaro and Paz-Albo, 2021) and short-term [e.g., less than one semester, Schenker (2019) and Chong et al. (2022)] study abroad nurtured students' GC. Schenker (2019) claimed that one activity for all students in the curriculum might push students into entirely new environments and cause anxiety. Schenker suggested that students engage in various activities to ameliorate learning abroad, such as attending lectures with discussions at the local library, participating in religious events different from their own, or shopping in the local market. However, Doerr (2020) found that marginalized students gained GC in other ways; minority immigrant students experienced similarities and differences from their own culture when traveling abroad, which was seldom found in samples of white mainstream students.

For Chinese students, four qualitative studies echoed overseas mobility augmented graduate students' interaction with culturally different people and understanding of multiculturalism, which cultivated GC. Researchers gathered positive feedback on overseas academic programs and detailed eight case studies at Tsinghua University (Fang et al., 2018; Hu and Jing, 2018) and three at Zhejiang University (Zhang, 2020) with destinations in United States, Kenya, Ethiopia, Iran, Indonesia, Serbia, and United Arab Emirates. Liu and Cao (2020) analyzed 189 students' international mobility programs in 62 Chinese universities through the lens of GC. Results showed that

approximately half of the programs emphasized the cultivation of global knowledge and language proficiency. However, less than one-quarter of programs aimed to promote global attitudes and skills (e.g., international cooperation and communication). Moreover, two quantitative studies highlighted the significance of overseas experience in developing GC (Meng et al., 2017b; Cen and Yang, 2022). The number of countries students visited positively impacted their GC scores. Both qualitative and quantitative findings called for more strategies for GC cultivation when designing international mobility in Chinese higher education.

3.5.2.2 Faculty mobility

Only one study investigated the relationship between faculty mobility and GC. Using Pearson correlation analysis, Butum et al. (2020) found that faculty mobility promoted GC reflected in helping students with problem-solving, knowledge of the labor market, and employment opportunities.

3.5.3 Internationalization at home universities

IaH refers to all internationally related activities that promote GC without experience abroad (Nilsson, 2003). The curriculum is the central pathway for schools and educators to instill GC (American Council on Education, 2023). A total of 10 of the 26 studies affirmed that students who had no opportunity to study overseas could enhance GC through engaging domestically in internationalization curriculum, co-curriculum, and extra-curriculum.

3.5.3.1 Curriculum

In correspondence with the Internationalization framework (American Council on Education, 2023), the systematic review seeks internationalization curriculum as courses that provide students with knowledge, skills, attitudes, and values related to their GC. A total of five studies underscored four themes that can be incorporated into the curriculum that facilitates GC learning outcomes. They are intensive foreign language courses, subjects taught exclusively in foreign languages, literature and textbooks written in foreign languages in the fields of study, courses related to global issues and Internalization, and preparation for international employability.

In Romania, Butum et al. (2020) depicted three themes for designing Internationalization curricula. The curricula include intensive courses of foreign languages (e.g., English), subjects taught exclusively in foreign languages (e.g., English), or an international topic preparing students for international employability. Cen and Yang (2022) added two predictors of the internationalization curriculum: (a) reading information related to the fields of study in English or other foreign languages; and (b) courses providing topics or discussions related to global issues. Another two studies echoed that the courses related to global issues and Internationalization topics catalyzed both Chinese undergraduates' and graduates' GC acquisition (Meng et al., 2017a; Song and Li, 2020).

3.5.3.2 Co-curriculum

Internationalization framework (American Council on Education, 2023) defined co-curriculum as international or intercultural activities that provide direct or indirect discussion/interaction with foreign students/faculty in class or on campus. A total of eight studies presented four co-curriculum factors for enhancing GC learning, such as in-person contact with foreigners in course learning, in-person

contact with foreigners in campus activities, virtual collaboration/discussion with foreign students in class, and international activities.

Meng et al. (2017a) argued that "contact with foreigners through campus activities" and "attending courses of internationalization" can catalyze students' GC, but "contact with foreigners in course learning" had no contribution to GC (p. 14). One probable reason was that students tended to feel more stressed in a formal learning environment, which decreased out-group interaction (Lee et al., 2012).

Virtual collaboration and discussion with international students in class is the principal element of a co-curriculum. Ndubuisi et al. (2022) reported that an online program called International Virtual Engineering Student Teams cultivated engineering professional attributes and GC in students across the globe. The virtual program included GC training modules and platforms to actively engage engineering graduate students worldwide in online collaborative activities, focusing on "communication, intercultural competence, leadership, decision-making, and relationship building" (Ndubuisi et al., 2022: 262). Participants described positive outcomes gained from the program, such as "intercultural awareness and understanding, diversity appreciation, project planning and coordination, intercultural communication and sensitivities, social cohesion, and commitment" (Ndubuisi et al., 2022: p. 270). However, participants also detailed some challenges related to virtual contact, such as differences in time zones and academic administration practices (e.g., differing course credits), dual faculty supervision, and difficulty accessing technology.

Kang et al. (2018) developed a one-semester virtual cross- and intercultural project for fashion courses between US and Korean universities. Kang et al.'s findings demonstrated that incorporating online contact in the curriculum improved the American students' intercultural communication skills and knowledge as well as the Korean students' open attitude and knowledge. Nevertheless, no improvement was found in Korean students' intercultural communication skills. This suggested that language proficiency might be essential for GC and could not be improved in only one semester.

In the Chinese context, three studies stated that online contact embedded in curriculum contributed to GC achievement. Li (2013) devised a one-semester online research paper collaboration between American and Chinese undergraduates as a compulsory course element. A total of 34 groups were randomly paired, with one American student and one Chinese student on each team. Results from paired comparison t-tests conveyed that virtual contact with foreigners was an add-on pedagogical intervention program for promoting GC. Furthermore, Commander et al. (2016) designed asynchronous online discussions for American and Hong Kong undergraduates at their home campuses. Data of content analysis on the written responses of all participants mirrored the effectiveness of virtual interaction for increasing GC. Based on the notion of critical friends, Leung et al. (2017) invited four groups of doctoral nursing students to engage in one-year online research seminars on analogous research themes and methods (one student from Hong Kong and one from Sweden in each group). Critical friends signified reliable individuals with similar research interests and backgrounds who posed inspiring questions, offered information from another perspective, and gave productive and pertinent comments (Costas and Kallick, 1993; Carlson, 2015). The qualitative findings (reflective journals and focus group interviews) reiterated the relevance of virtual

interactions for GC and described several implications for future virtual internationalization activities. First, educators' assistance encouraged students to develop the capacity to identify cultural diversity. Second, adequate preparedness in infrastructure might smooth virtual cooperation, promoting a willingness and generating active motivation to distinguish similarities and enjoy research cultural diversity.

Co-curriculum including international activities were suggested in two studies. From the perspective of 124 participants at a research university, Song and Li (2020) reported that students were attracted by international activities such as global issues workshops. Nevertheless, they were not motivated to participate in the course on laboratory safety standards, reflecting that lack of attendance was the fundamental reason for frequent laboratory accidents in recent years.

3.5.3.3 Extra-curriculum

Extra-curriculum refers to internationalization activities outside campus that promote students' involvement in international partnerships, networks, organizations, and companies. A total of four studies detailed three genres of extracurricular that augment GC achievement, such as interconnection with local multinational communities/companies, intercultural training or internship, and international academic engagement.

In the International context, Butum et al. (2020) regarded students' interconnection with local multinational communities/ companies as a genre of extra-curriculum, which positively influenced their GC level. Moreover, Butum et al. (2020) pointed out two items of extra-curriculum that positively influence GC acquisition, such as a university providing joint or dual specialization/diplomas and an institution recruiting international students, researchers, enterprises, and organizations to develop new programs and to provide new skills.

In China, Li and Xu (2016) stated that international extra-curriculum (e.g., intercultural training/internship) was conducive to GC development, based on the causal inference analysis of 2,505 respondents from eight universities in Beijing. Two studies found a positive correlation between GC and global academic involvement (e.g., international course involvement, international publication, and international conference engagement). Jiang et al. (2023) reported that medical postgraduates could enhance their GC through international course involvement, international publication, and international conference engagement. The frequency of involvement in international conferences had the highest impact on GC. The results suggested that medical universities should offer adequate opportunities for global academic activities. Cen and Yang (2022) echoed that the experience of presenting at international conferences augmented graduate students' global knowledge.

4 Conclusion

Based on an analysis of 26 selected studies from the last decade (2013–2022), the findings provide practical information for designing global competence-based education in universities. Guided by Butler's (1978) four components of competence (knowledge, skill, attitude, and value), this study synthesized global competence (GC) from two orientations (i.e., career and civic) and four dimensions: (a) knowledge of world events and foreign cultures (Hunter, 2004), global sustainable issues (Tsinghua University, 2016; Organization of Economic

Cooperation and Development, 2019), and foreign languages (Tsinghua University, 2016); (b) skills to cooperate cross-culturally, adapt in a cross-cultural environment (Hunter, 2004; Tsinghua University, 2016), and deal with challenging situations (Tsinghua University, 2016; Organization of Economic Cooperation and Development, 2019); (c) attitudes toward cultural diversity and preparedness for the involvement of diversity (Hunter, 2004; Tsinghua University, 2016; Organization of Economic Cooperation and Development, 2019); and (d) values about immigrants and respect for people from other cultures (Tsinghua University, 2016; Organization of Economic Cooperation and Development, 2019).

Results from the review have shown that most Chinese studies applied the GC scale developed from Hunter's (2004) Global Competence Checklist, with two studies using author-designed GC scales. Nevertheless, researchers of international studies used varied scales to understand postsecondary students' GC level, reflected in Organization of Economic Cooperation and Development (2019) and Alfaro and Paz-Albo (2021), GCAA (Schenker, 2019), and author-developed surveys (Kang et al., 2018). The purpose of the assessment was to intentionally and systematically portray global competence-based education in postsecondary education (OECD/Asia Society, 2018). However, different scales cause disparities and confusion in academia for understanding GC. Therefore, Global Competence Associates (2023) call for a worldwide consensus in terms of its definition and measurement, with which insight and effort could be concentrated on GC acquisition in higher education.

Under Bourdieusian theory, the findings demonstrate a strong relationship between students' GC level and their cultural capital background. For demographic factors, the GC score of male students surpassed that of female students. Besides, students from urban areas showed a better GC than those from rural places. Further, participants whose parents had higher educational degrees or worked as civil servants or senior professionals scored higher GC than first-generation students or those whose parents were technical personnel or manual laborers. Moreover, participants who pursued working in nonpublic sectors displayed better skills and attitudes about GC than those interested in public sectors. For educational background, students who graduated from leading high schools exhibited higher GC than those from ordinary high schools. Students from top universities or universities in metropolitan areas were prone to have more internationalized opportunities, thereby scoring higher GC than those from less prestigious universities or universities located in less flourishing cities. Participants who specialized in science had lower GC than those studying art. For global engagement, the GC level of students proficient in foreign languages outweighed that of those showing little interest in foreign language learning. Female students were capable of more foreign languages than males. Participants who used the global information received on the mass media (e.g., TV, internet, and social media) presented higher GC than those who had little experience in acquiring cross-cultural knowledge through media. For foreign acquaintances, both in-person and virtual foreign friends contributed to GC development. All the results mirror Bourdieu's capital theory. Students with higher cultural capital obtained more educational opportunities and further boosted GC outcomes. University is an ideal venue where students accumulate cultural capital. Educators and stakeholders must consider students' cultural identities when designing global competence-based pedagogies.

For internationalization factors, findings showed a solid correlation between GC growth and internationalization abroad (IA, i.e., student and faculty mobility). This indicates that studying abroad is a direct and practical pedagogy for GC acquisition. The results also presented alternative learning opportunities reflected in internationalization at home (IaH). In line with the Internationalization framework (American Council on Education, 2023), the literature has suggested that universities and educators should extend local curricula to promote GC. For curriculum, the results exemplify some effective internationalization courses to cultivate GC, including foreign languages, subjects taught exclusively in foreign languages, literature in foreign languages, content related to global issues and Internationalization, and preparation for international employability. Moreover, supplementary courses are effective pedagogies for GC cultivation, such as on-campus co-curricular activities (e.g., in-person contact with foreigners in course learning or on-campus activities, virtual collaboration and discussion with foreign students in class, literature or textbooks in foreign languages, and international activities in campus) and out-campus extracurricular activities (e.g., international academic engagement, intercultural training or internship, interconnection with local multinational communities/ companies, joint/dual diplomas from foreign countries, schools' augmenting new international cooperation).

Although most of the included manuscripts addressed the GC of Chinese participants, this systematic literature review would be helpful for universities to take measures to compensate for the deficiency of social and cultural capital. All students, even those who had a lower capital background or few opportunities for international mobility, can reap the potential benefits of GC attainment by involvement in IaH educational activities.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

YT: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Conceptualization. MC: Writing – review & editing, Supervision, Methodology, Conceptualization.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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