



A systematic review of predictors of international students' cross-cultural adjustment in China: current knowledge and agenda for future research

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Abstract

China has emerged as one of the leading destinations for international students, attracting growing research interest in examining their cross-cultural adjustment. Our study moved beyond prior work by offering the first systematic review on predictors of international student adjustment in China, with all its three domains taken into consideration: psychological, sociocultural and academic adjustment. Based on the 33 reviewed articles, a wide range of predictors were identified. Guided by the Job Demands-Resources Model, these predictors were categorized into six broad clusters: demographics, personal resources, contextual resources, personal demands/barriers, contextual demands/resources, and other variables. The reviewed studies placed more emphasis on predictors in resources clusters than on those in demands/barriers clusters. Research strengths, gaps and inconsistencies in the literature were identified and discussed. Accordingly, an agenda was developed to highlight opportunities for theoretical and empirical advancement for future research.

Keywords Systematic review · International student · Cross-cultural adjustment · China · JD-R Model

Introduction

For almost one decade, China has been remaining the world's top "supplier" of international students seeking cross-border education and cross-cultural experiences. Meanwhile, China has in more recent years made great strides to become one of the leading "receivers" of international students, standing out as the top destination in Asia (Ma & Zhao, 2018) and the third in the world right behind the U.S. and UK (English & Zhang, 2019). In 2018, a total of 492,185 international students were enrolled at Chinese universities (Ministry of Education of China, 2019), a number that has more than doubled over the past decade and

accounted for nearly 10% of worldwide international enrollments of that year (Tian & Liu, 2020).

The upsurge in number has prompted researchers to explore cross-cultural transitions of international students in China (abbreviated as IS-China). An initial electronic search in January 2020 combining the title words of "international students" and "China" on Web of Science yielded 122 peer reviewed articles. Noteworthy is that findings of the articles can send alert messages to Chinese higher education stakeholders intending to sustain growth in the international student market. Qualitative studies by Ding (2016) and Li (2015) consistently found that IS-China had low levels of satisfaction, received inadequate social support, and felt separated from local communities. These findings inform that cross-cultural adjustment of IS-China can be a major concern to be intensively researched and effectively tackled. Furthermore, given relevant research having reached a critical mass, with which may also come ambiguity and confusion, a vital step forward is to offer a systematic review of evidence-based antecedents of IS-China adjustment. Thus, our review aims to take stock of current knowledge and develop an agenda to assist future research to elucidate the process by which IS-China adjustment develops and can be influenced by multi-faceted factors.

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The current review of international student adjustment deviates from prior relevant reviews in three important aspects. First, most prior reviews targeted international student adjustment in Western countries, particularly the U.S. (Brunsting, 2018; de Araujo, 2011; Yang, Xu, et al., 2018; Zhang & Goodson, 2011). Hence, our work can be the first systematic review of the gradual expansion of research on IS-China adjustment. Further, many Chinese sociolinguistic and sociocultural features are distinctive from those of the U.S. and other Western countries, such as high context cultures (Hall, 1976), collectivist cultures and high power distance (Hofstede, 2001). Such host contexts, possibly exerting some unique impacts, necessitate an updated understanding of IS-China adjustment and its predictors through a timely and systematic review.

Second, Ward and colleagues theoretically and empirically differentiated the two dimensions of cross-cultural adjustment for ethnic minority in general: psychological and sociocultural adjustment (Ward et al., 2001). Psychological adjustment is defined as psychological well-being (e.g. well-being, mental health, life satisfaction, stress, anxiety and depression), while social adjustment is defined as “the ability to ‘fit in’, to acquire culturally appropriate skills, and to negotiate interactive aspects of the host environment” (e.g. social identity, belonging, and social support) (Ward et al., 2001). Prior reviews tend to align with this theoretical distinction by summarizing predictors of the two dimensions (Brunsting et al., 2018; Sarmiento et al., 2019; Smith & Khawaja, 2011; Zhang & Goodson, 2011).

However, these prior reviews failed to consider that international students can be a special minority group with academic goals. According to Rienties et al. (2012), scholars should include academic adjustment as an extra dimension when investigating international student adjustment. Academic adjustment refers to how well international students can manage various academic demands of the host educational environment (i.e. application, motivation, performance and satisfaction) (Rienties et al., 2012). In this regard, the current review moves beyond prior reviews by offering a more comprehensive understanding of international student adjustment in its all three domains (psychological, sociocultural and academic adjustment).

Third, although prior reviews shed considerable insights into predictors of international student adjustment (Brunsting et al., 2018; Zhang & Goodson, 2011), they generally had vague and loose operationalizations of the various predictors. In other words, they failed to draw on a theoretical base to conceptualize and categorize the huge number of predictors, thus making their findings appear disorganized and fragmental. To address the gap, our review attempts to classify the potentially various predictors by utilizing the Job Demands-Resources model (JD-R; Bakker & Demerouti, 2007; Schaufeli & Taris, 2014), a highly influential theory

in the occupational psychology. The most recent interpretation of the JD-R theoretically distinguishes four broad types of work-related factors that may influence employee well-being and performance (Bakker & Demerouti, 2017). Two of them are on contextual levels: job demands (e.g. excessive workload, work-family conflict, job insecurity and job role conflict) and job resources (e.g. autonomy, training, social support and performance feedback). The other two are on individual levels: personal demands (e.g. perfectionism, workaholism and goal setting) and personal resources (e.g. self-efficacy, skill variety and optimism). Plenty of studies have empirically supported the JD-R by revealing impacts of the four categories on employees’ occupational well-being and performance across cultures and work sectors (e.g. Bakker & Demerouti, 2007; Cao et al., 2020). We assume that the JD-R can offer a unique theoretical lens through which to categorize predictors of international student adjustment for three main reasons. The first reason is that, similar to job performance in organizational contexts, cross-cultural adjustment functions as an essential indicator of international students’ performance in host academic contexts, as well as the broader scope of host social contexts. Encouragingly, though very limited in number, a few scholars have extended the application of the JD-R to university academic contexts, namely how learning demands and resources can impact university students’ academic performance (Doménech-Betoret et al., 2019; Lee et al., 2020; Wilson & Sheetz, 2010). For example, Wilson and Sheetz (2010) utilized the JD-R and found that university students’ group task performance was influenced by academic demands and resources via the mediator of academic pressure. The second reason is that international students also suffer from demands and possess resources on both individual and contextual levels when striving for cross-cultural adjustment. The demands may be influential for adjustment due to the resulting emotional exhaustion and stress because international students tend to make high efforts to deal with the demands, while the resources may be influential for adjustment due to their protective roles in reducing acculturative stress and motivational roles in reshaping self-regulated behaviors and navigating the host society (e.g. engaging in intercultural activities and building intercultural friendships) (Antoniadou & Quinlan, 2020; Cao et al., 2021). The third reason is that the JD-R is not restricted to specific types of demands and resources. In other words, any demand and any resource can be considered within this model (Schaufeli & Taris, 2014). Such flexibility and broad scope can potentially provide many perspectives for researching predictors of international student adjustment. Based on these three reasons, we assume that the JD-R may be a suitable theoretical framework for our study and may even outperform other frameworks due to its flexibility and broad scope. Therefore, our review incorporates an inter-disciplinary approach by first applying the JD-R to

scrutinizing and distinguishing predictors of cross-cultural adjustment, thus potentially introducing a new theoretical model to the literature on higher education internationalization and cross-cultural psychology.

Combining the JD-R with our research aims, we assume that there may be five main categories of predictors of international student adjustment, namely demographics, contextual demands/barriers, contextual resources, personal demands/barriers, and personal resources. Based on the definitions offered in the JD-R (Bakker & Demerouti, 2007, 2017), contextual demands/barriers are conceptualized as sociocultural, institutional or situational aspects of the host context that place high demands on or raise barriers to international students and are therefore associated with physio-psychological costs. Examples are prejudice, cultural distance and academic overload. Contextual resources are conceptualized as sociocultural, institutional or situational aspects of the host context that are instrumental for stimulating international students' personal growth, reducing their physio-psychological costs, and facilitating their transitions. Examples include social support, social contact and receptive university climate. Personal demands/barriers are conceptualized as personal requirements that compel international students to strive for performance, or personal deficiencies that add extra setbacks to meeting the requirements. Examples include perfectionism, performance expectations and intergroup anxiety. Finally, personal resources are conceptualized as personal beliefs international students hold concerning how much control they can have over the host environment. Examples include coping self-efficacy, intercultural competence and optimism.

Based on the above discussions, this critical review aims to answer the following research questions:

- (a) What are the predictors of psychological, sociocultural and academic adjustment of IS-China?
- (b) To what extent the predictors, excluding demographics, can be categorized into the four clusters originating from the JD-R: contextual demands/barriers, contextual resources, personal demands/barriers and personal resources?
- (c) Based on the review, what research gaps need to be addressed and what opportunities can be highlighted for empirical and theoretical advancement for future research?

Methods

Search strategies

An electronic search was performed, lasting from February to March 2020. To ensure a complete inclusion,

we searched for articles published in both English language journals and Chinese language journals. Further, no restrictions were imposed on the publication period because this work is the first review of IS-China adjustment and intends to synthesize all relevant knowledge available at present. Specifically, all articles that were published prior to 1st March, 2020 can be considered for potential inclusion. For English articles, in line with best practice (Short, 2009), we utilized the following electronic databases: Web of Science, ERIC, Academic Search Premier (EBSCO), PsycINFO (EBSCO), Communication Studies, Scopus, Sociological Abstracts, and Health Sciences. For Chinese articles, we searched the two electronic databases in Chinese National Knowledge Infrastructure (CNKI): Chinese Core Journals Index (CCJI) and Chinese Social Sciences Citation Index (CSSCI), because articles indexed in the two databases can be guaranteed to have undergone peer reviews.

Within the search areas of titles, keywords and abstracts, all possible combinations of these terms were used: (Field 1) international student, overseas student, or incoming student; (Field 2) China or Chinese university; (Field 3) adjustment, adaptation, integration, integrity, fit, satisfaction, depression, stress, anxiety, loneliness, mental health, well-being, belonging, connectedness, academic*, and learning*. Reference lists of publications selected for full review were also checked to identify any additional studies that were missing in our database search.

Inclusion criteria

First of all, it is vital to acknowledge that researchers have contributed a lot to the literature on cross-cultural adjustment of IS-China. However, to suit our research objectives, we can only select the articles that meet the following inclusion criteria for the systematic review. The inclusion criteria were designed with references to prior review articles (Brunsting et al., 2018; Zhang & Goodson, 2011). All articles to be reviewed should meet the following criteria: (1) include a sample of international students at Chinese universities; (2) only consider international student samples in Mainland China, excluding Hongkong, Macau and Taiwan, because these regions have some different cultural features and educational systems; (3) report quantitative predictors of or variables associated with adjustment outcomes (e.g. correlation coefficients of β or Pearson r); (4) be published in peer-reviewed journals, which means that book chapters, conference papers and dissertations will not be considered because there is no way to verify their research quality without peer reviews; (5) report data in a clear manner to reduce chances of misinterpretation and present a defined statistical analysis to merit the inclusion.

Retrieval procedures

According to the above-mentioned strategies and criteria, attempts were made to retrieve all peer-reviewed articles. In search of English articles, altogether 857 articles with 126 duplicates were initially identified. After removing the duplicates by EBSCOHost, the two authors independently read titles and abstracts of the remaining 731 English articles. Many of them were excluded ($N=679$) because they had clearly irrelevant research focuses (e.g. international mobility, mobility program evaluation, educational management, policy issues or Chinese students studying abroad). Then a full-text review of the retained 52 English articles was conducted independently by the two authors to decide if they meet the criteria and can be included in the final review. Another 30 articles were removed for different reasons. For example, some studies reported qualitative data (e.g. Ding, 2016; Li, 2015), failed to present a defined data analytical plan or correlational coefficients (e.g. Lwin et al., 2017), or had samples in Hongkong (e.g. Cheung & Yue, 2013). Therefore, 22 English articles were retained and included for the final review (see Fig. 1 for article selection process). When any disagreement occurred between the two authors, ideas were immediately exchanged and discussed until the consensus was reached on whether the publication was suitable for review. Next, similar selection procedures

were performed to identify Chinese articles, with 86 publications originally identified and 11 publications left for final review (see Fig. 1). Many were discarded because they were not evidence-based, simply reported descriptive data (e.g. percentage and mean scores), or had clearly irrelevant research focuses. As such, the final total number of articles included in this review was 33, all of which were quantitative in nature and published across 29 academic journals.

Results

Article characteristics

The 33 reviewed articles are denoted in the reference list with asterisks. Their details are presented in Table 1, including author and publication year, sample size, dependent variable, theoretical framework, research design, analytic method, and major findings. Although we exerted no time restrictions, the earliest article was published in 2008 (see Fig. 2). We can note a steady growth in the number of publications since then. During the six-year timeframe from 2008 to 2013, only six articles were published with four in English and two in Chinese. By contrast, the number of publications ($N=25$) has quadrupled over the next six-year timeframe

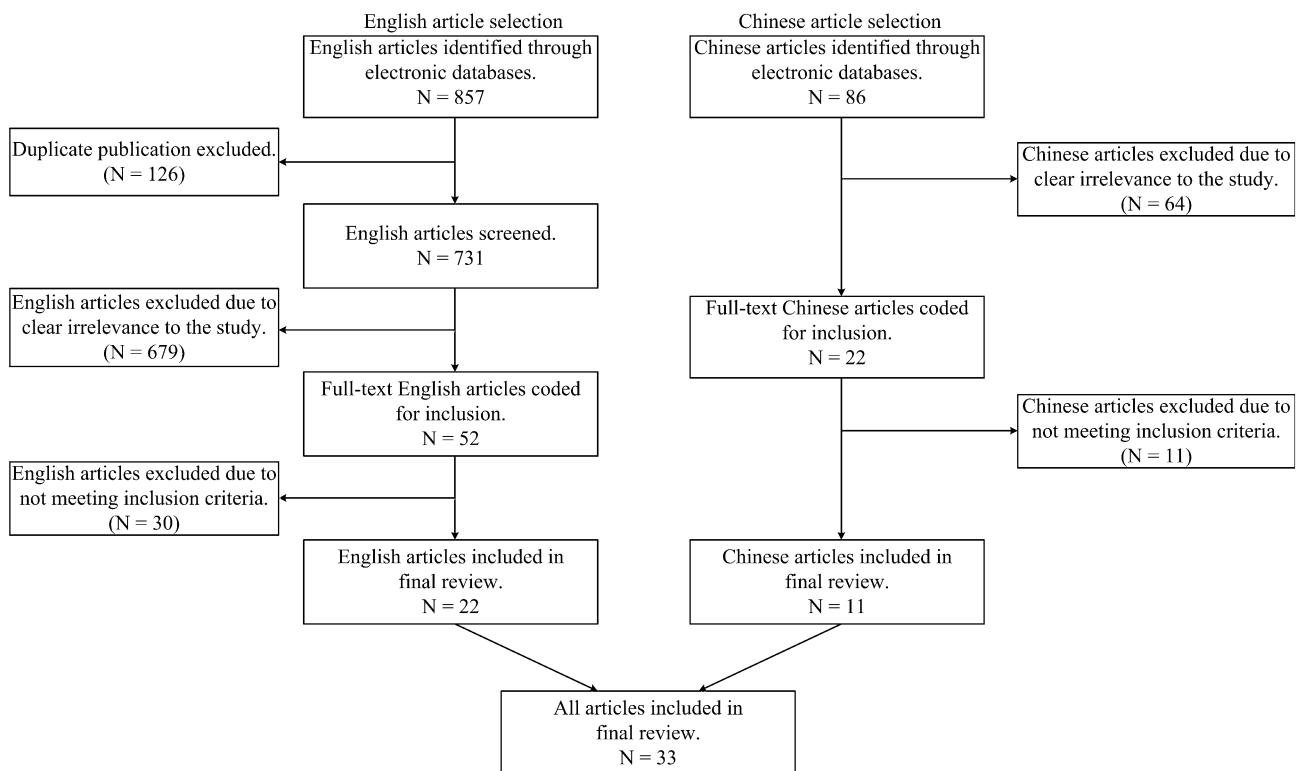


Fig. 1 Flow chart of article selection process

Table 1 Literature review overview matrix for the 33 articles included in the final review

Authors	Sample characteristics	Dependent variables	Theoretical framework	Study design	Analytic methods	Findings (predictors)
1 Yu and Watkins (2008)	IS in Nanjing, $N = 115$	Chinese language proficiency	Socio-educational model of second language acquisition	Cross-sectional	MANOVA; stepwise regression	-Predicting Chinese language proficiency: gender (female, +) and integrative orientation (+); -Western IS reported higher levels of motivation, integrative orientation and spoken Chinese proficiency, but lower levels of language anxiety than Asian IS
2 Xie and Liu (2009) (in Chinese)	Asian IS in Nanchang, $N = 304$	Psychological, socio-cultural and academic adjustment	None	Cross-sectional	Hierarchical multiple regression	-Predicting psychological adjustment: age (+), gender (male, +), prior cross-cultural experiences (+), length of stay in China (-), social contact (+), and Chinese language proficiency (+); -Predicting sociocultural adjustment: length of stay in China (-), social contact (+), participation in Chinese cultures (+), and Chinese language proficiency (+); -Predicting academic adjustment: level of education (+), length of stay in China (+), social contact (+), participation in Chinese cultures (+), and Chinese language proficiency (+)

Table 1 (continued)

Authors	Sample characteristics	Dependent variables	Theoretical framework	Study design	Analytic methods	Findings (predictors)
3 Yu (2010)	IS in Beijing. $N=90$	Sociocultural and academic adjustment	Ward and colleague's adjustment framework	Longitudinal	Correlational analysis	-Variables correlated with sociocultural adjustment (post-test): integrative motivation (+), language anxiety (-), and sociocultural adjustment (pre-test) (+); -Variables correlated with academic adjustment: length of stay in China (-), integrative motivation (+), language anxiety (-), sociocultural adjustment (pre-test) (+), and academic adjustment and academic adjustment (pre-test) (+)
4 Lawani et al. (2012)	IS in Changchun. $N=254$	Social adjustment	Ward and colleague's adjustment framework	Cross-sectional	Chi-square test	-Predicting social adjustment: Chinese language proficiency (+)
5 Li et al. (2012) (in Chinese)	IS in Hubei province. $N=151$	Cross-cultural adjustment	Theory of cultural intelligence	Cross-sectional	Hierarchical multiple regression and moderation analysis	-Predicting cross-cultural adjustment: level of education (+), Chinese language proficiency (+), cultural intelligence (+), psychological capital (+) and social support (+); -Psychological capital and social support moderated the relationship between cultural intelligence and cross-cultural adjustment
6 Yu and Downing (2012)	IS in Nanjing. $N=151$	Sociocultural and academic adjustment	Ward and colleague's adjustment framework, Tinto's interactionist model	Cross-sectional	t -test, hierarchical multiple regression and moderation analysis	-Predicting sociocultural adjustment: place of origin (Western IS group, +), integrative motivation (+), and Chinese language proficiency (+); Predicting academic adjustment: integrative motivation (+)

Table 1 (continued)

Authors	Sample characteristics	Dependent variables	Theoretical framework	Study design	Analytic methods	Findings (predictors)
7 Wen et al. (2014) (in Chinese)	Graduate IS in Beijing. <i>N</i> = 552	Academic satisfaction	None	Cross-sectional	Multiple regression	-Predicting master students' academic satisfaction: academic training (+), university support (+) and interpersonal communication (+); -Predicting doctoral students' academic satisfaction: academic training (+) and university support (+) -Predicting acculturative stress: place of origin (Asian and African IS, +), marriage status (single, -) and preparation prior to departure (-)
8 Yu et al. (2014)	IS in Wuhan. <i>N</i> = 567	Acculturative stress	Berry's acculturation Theory	Cross-sectional	<i>t</i> -test, ANOVA, multiple regression	Predicting sociocultural adjustment: Reflective learning style (+) and intuitive learning style (-) -Predicting life satisfaction: six aspects of cross-cultural adjustment [awareness of cultural differences (+), weather in China (-), submitting assignment in English (+), over-expectation of China (-), friendships (+), and prior cross-cultural experiences (+)] -Levels of sociocultural and academic adjustment varied during the length of stay in China
9 Zhong and Gao (2014) (in Chinese)	Undergraduate IS in Jiangsu province. <i>N</i> = 94	Sociocultural adjustment	Berry's acculturation Theory	Cross-sectional	Multiple regression	
10 Akhtar et al. (2015)	African IS in China. <i>N</i> = 110	Life satisfaction	Kim's theory of cross-cultural adaptation, Ward and colleague's adjustment framework	Cross-sectional	Multiple regression	
11 An and Chiang (2015)	IS in Southern China. <i>N</i> = 330	Sociocultural and academic adjustment	Kim's theory of cross-cultural adaptation, the developmental model intercultural sensitivity, the framework of multi-cultural personality	Cross-sectional	Correlational analysis, <i>t</i> -test	
12 Chu et al., (2015)	Asian IS in Guangzhou and Beijing. <i>N</i> = 300	Stress and life satisfaction	None	Cross-sectional	Chi-square test, bivariable logistic regression	-Predicting stress: father's education (+) and economic status (+); -Predicting life satisfaction: none

Table 1 (continued)

Authors	Sample characteristics	Dependent variables	Theoretical framework	Study design	Analytic methods	Findings (predictors)
13 Wang et al. (2015)	IS in China. <i>N</i> = 454	Psychological and socio-cultural adjustment	Ward and colleague's adjustment framework	Cross-sectional	Hierarchical multiple regression; moderation analysis	-Predicting psychological adjustment: online social support (+); -Predicting sociocultural adjustment: online social support (+); -Gender moderated the relationship between online social support and psychological adjustment -The canonical variable of academic satisfaction was charged by university infrastructure and core self-evaluation
14 Zhang et al. (2015) (in Chinese)	IS in Guangzhou. <i>N</i> = 537	Academic satisfaction	None	Cross-sectional	Canonical correlation analysis	-Predicting sociocultural adjustment: place of origin (Non-Asian IS group, +), secondary coping (-), three-way interaction effects among primary coping, stress and grouping (Asian vs. Non-Asian IS), as three-way interaction effects among secondary coping, stress and grouping (Asian vs. Non-Asian IS)
15 English et al. (2015)	IS in Eastern China. <i>N</i> = 121	Sociocultural adjustment	Coping theory	Longitudinal	Hierarchical regression	-Predicting academic burnout: Chinese language proficiency (+) and academic self-efficacy (-)
16 Guo (2016) (in Chinese)	IS in Beijing. <i>N</i> = 283	Academic burnout	Bandura's theory of self-efficacy	Cross-sectional	<i>t</i> -test, ANOVA, and stepwise regression	

Table 1 (continued)

Authors	Sample characteristics	Dependent variables	Theoretical framework	Study design	Analytic methods	Findings (predictors)
17 Li and Li (2016) (in Chinese)	IS in Beijing, Chengdu and Wuhan. <i>N</i> = 772	Social connectedness, acculturative stress, and depression	Person-environment theory	Cross-sectional	SEM and bootstrap	-Predicting social connectedness: perfectionism (-); -Predicting acculturative stress: perfectionism (+), social connectedness (-); -Predicting depression: perfectionism (+), social connectedness (-) and acculturative stress (+); -Acculturative stress mediated the relationships of perfectionism and social connectedness to depression
18 Liu et al. (2016)	IS in Wuhan. <i>N</i> = 567	Depression	None	Cross-sectional	<i>t</i> -test, ANOVA and path analysis	-Predicting depression: place of origin (Asian and African IS, +), marriage status (single, -), and all seven dimensions of acculturative stress (value conflict, identity threat, rejection, poor cultural competence, opportunity deprivation, homesickness and self-confidence); -Self-confidence mediated the relationships between six other dimensions of acculturative stress and depression
19 Chen and Lin (2017) (in Chinese)	Angolan IS in Xiamen. <i>N</i> = 92	Depression	Berry's acculturation Theory	Cross-sectional	<i>t</i> -test and ANOVA	-Predicting depression: social support (-), Chinese language proficiency (-) and economic status (-)

Table 1 (continued)

Authors	Sample characteristics	Dependent variables	Theoretical framework	Study design	Analytic methods	Findings (predictors)
20 Jin and Zhang (2017) (in Chinese)	IS in Shanghai. <i>N</i> = 384	Social identity, social relationships, and social participation	None	Cross-sectional	Multiple regression	-Predicting social identity: interaction through Wechat (+) and intensity of Wechat use (+); -Predicting social relationships: number of Chinese friends (+), information communication via Wechat (+), interaction via Wechat (+) and intensity of Wechat use (+); -Predicting social participation: age (+)
21 Zhu and Krever (2017)	IS in Dalian. <i>N</i> = 288	Cross-cultural adjustment	None	Cross-sectional	Correlational analysis	-Predicting cross-cultural adjustment: level of education (+), place of origin (Asian and African IS, -), and social media usage (+)
22 He et al. (2018) (in Chinese)	IS in China. <i>N</i> = 169	Sociocultural adjustment	None	Cross-sectional	<i>t</i> -test and ANOVA	-There were no significant differences in sociocultural adjustment across groups of gender, age, length of stay in China, prior knowledge of China, and duration of Chinese language learning
23 Jiang and Shypenka (2018)	IS in North China. <i>N</i> = 438	Loneliness	None	Cross-sectional	SEM and bootstrap	-Predicting loneliness: individualism (-); -Loneliness and smartphone use mediated the relationships between individualism and smartphone addiction
24 Teye et al. (2018)	IS in China. <i>N</i> = 234		None	Cross-sectional	SEM	-Predicting university fit: subjective well-being (+); -Predicting supervisor fit: subjective well-being (+), absorptive capacity (+), and university fit (+); -Predicting academic novelty: supervisor fit (+)

Table 1 (continued)

Authors	Sample characteristics	Dependent variables	Theoretical framework	Study design	Analytic methods	Findings (predictors)
25 Wen et al. (2018)	IS in China. <i>N</i> = 1674	Sociocultural adjustment and academic satisfaction	None	Cross-sectional	<i>t</i> -test and multiple regression	-IS in integrated programs (international and domestic students were taught in the same classes) reported better sociocultural adjustment than those in separated programs (international and domestic students were taught in the separated classes); -Predicting academic satisfaction: student-faculty academic contact (+), student-faculty social contact (+), instructional language (English, -), institution type (elite vs. non-elite), degree-seeking programs (-), level of education (+), and length of stay in China (-) -Predicting poor mental health: acculturative stress (+)
26 Yang, Zhang, et al. (2018), Yang, Zhang, et al. (2018))	IS in Beijing. <i>N</i> = 299	Poor mental health	Berry's acculturation Theory	Cross-sectional	SEM	

Table 1 (continued)

Authors	Sample characteristics	Dependent variables	Theoretical framework	Study design	Analytic methods	Findings (predictors)
27 English and Zhang (2019)	IS in Eastern China. N = 130	Psychological adjustment, sociocultural adjustment and general stress	Ward and colleague's adjustment framework, Cultural and Contextual Model of Coping	Longitudinal	Hierarchical regression	-Predicting psychological adjustment (T2): psycho- logical adjustment (T1) (+), discrimination (T1) (-) and two-way interac- tion effects between discrimination and coping on psychological adjust- ment; -Predicting sociocultural adjustment (T2): cultural distance (T1) (-), discrimination (T1) (-), host orientation (T1) (+), and three-way interaction effects between discrimi- nation, coping and host orientation on sociocul- tural adjustment; -Predicting general stress (T2): general stress (T1) (+), discrimination (T1) (+), and two-way interac- tion effects between discrimination and coping on general stress
28 Fan et al. (2019)	International doctoral students in Shanghai and Wuhan. N = 120	Academic innovation	Social exchange theory	Cross-sectional	SEM and bootstrap	-Predicting academic inno- vation: supervisor support (+), citizenship behavior (+), and creativity (+); -Citizenship behaviors and creativity mediated the relationship between supervisor support and academic innovation

Table 1 (continued)

Authors	Sample characteristics	Dependent variables	Theoretical framework	Study design	Analytic methods	Findings (predictors)
29 Gebregergis et al. (2019)	IS in Wuhan. <i>N</i> = 506	Acculturative stress and depression	Berry's acculturation Theory	Cross-sectional	Hierarchical regression and mediation analysis	-Predicting acculturative stress: age (+), prior cross-cultural experiences (-), and cultural intelligence (-); -Predicting depression: age (-) and acculturative stress (+); -Acculturative stress mediated the relationship between cultural intelligence and depression
30 Hu et al. (2019) (in Chinese)	IS in Wuhan. <i>N</i> = 301	Depression	Communication Theory of Identity	Cross-sectional	Hierarchical regression and mediation analysis	-Predicting depression: intercultural communicative competence (-), personal enacted identity gap (+), and personal relational identity gap (+)
31 Peng and Wu (2019)	IS in China. <i>N</i> = 665	Cross-cultural adjustment	Kim's theory of cross-cultural adaptation, Ward and colleague's adjustment framework	Cross-sectional	SEM	-Variables representing cross-cultural adjustment: host communication competence, host social communication, intercultural transformation basic, and intercultural transformation advanced

Table 1 (continued)

Authors	Sample characteristics	Dependent variables	Theoretical framework	Study design	Analytic methods	Findings (predictors)
32 Hu et al. (2020)	IS in China. <i>N</i> = 665	Social and academic adjustment	Person-environment fit theory	Cross-sectional	SEM and moderation analysis	-Predicting social adjustment: proactive personality (+) and cultural intelligence (+); -Predicting academic adjustment: length of stay in China (–), level of education (+), proactive personality (+), and cultural intelligence (+); -Cultural intelligence mediated the relationship between proactive personality and social and academic adjustment; -Social adjustment mediated the relationship between cultural intelligence and academic adjustment; -Information social media usage moderated the relationship between proactive personality and cultural intelligence
33 Yousaf et al. (2020)	IS in China. <i>N</i> = 547	Social relationships with host-nationals	CAGE distance framework (i.e. cultural, administrative, geographic, and economic distance)	Cross-sectional	SEM	-Predicting social relationships with host-nationals: country image (+) and Chinese higher education brand equity (+)

IS international students; SEM structural equation modeling

+represents a positive predictor or correlation

–represents a negative predictor or correlation

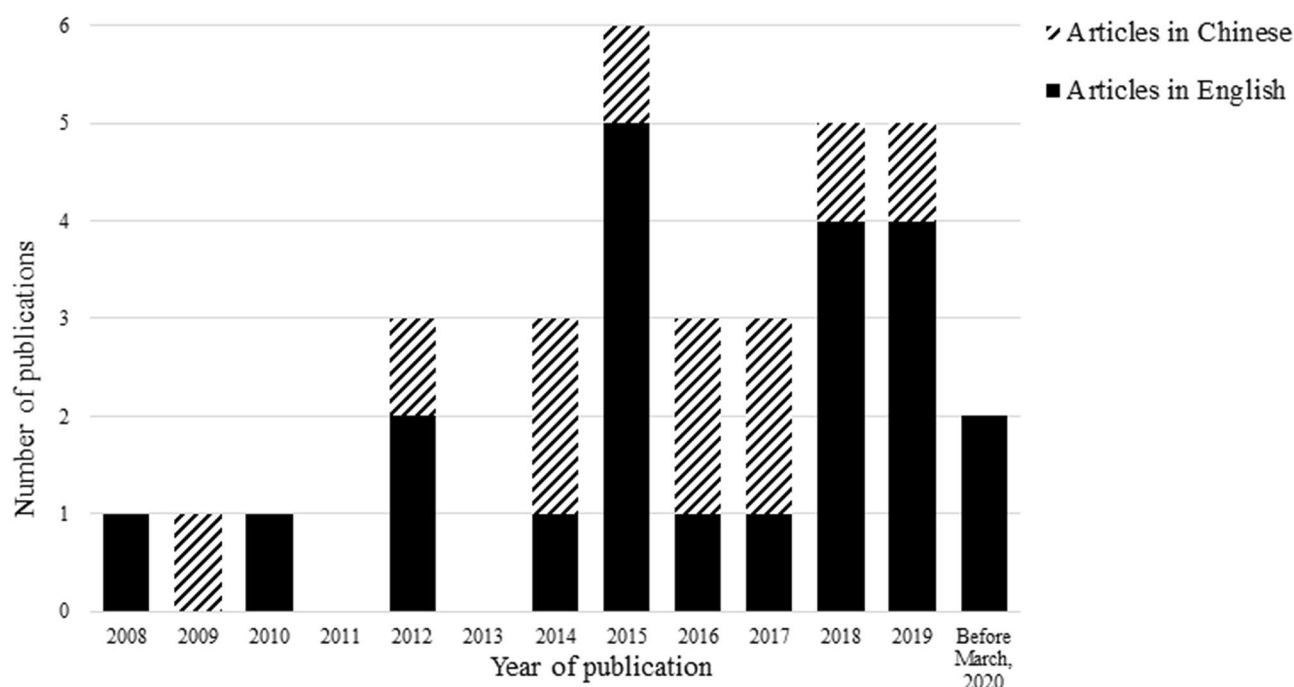


Fig. 2 Publication by year and written languages

from 2014 to 2019, followed by another two publications in the first two months of 2020.

As regards sample characteristics, most studies investigated international students from various countries, with only four exceptions having samples from a particular country or region. Specifically, Xie and Liu (2009) and Chu et al. (2015) exclusively focused on students from Asian countries, and Akhtar, (2015) and Chen and Lin (2017) focused on students from African countries. Despite the call for researching graduate and undergraduate international students separately (Brunsting et al., 2018), only two reviewed studies (Fan et al., 2019; Wen et al., 2014) explicitly focused on graduate IS-China, while only one reviewed article (Zhong & Gao, 2014) explicitly focused on undergraduate IS-China. All others had both types of students (or not specified) and did not disaggregate their respective adjustment processes. As regards study designs, an overwhelming majority of the studies were cross-sectional in nature with only three exceptions (English & Zhang, 2019; English et al., 2015; Yu, 2010) employing longitudinal designs. Although Smith and Khawaja (2011) in their review of international student acculturation noted a lack of longitudinal studies, it seemed that this limitation was not adequately heeded and tackled by scholars of IS-China adjustment.

Theoretical frameworks

As shown in Table 1, the reviewed literature utilized some theoretical perspectives to explain how the multi-faceted

adjustment develops and can be related to a wide spectrum of predictors. The theories mainly originate from the fields of psychology and sociology. Among them, the most frequently used theory (by seven articles) was the adjustment framework developed by Ward and colleagues to distinguish psychological and sociocultural adjustment. What followed was the Berry's acculturation theory employed by five articles. Three articles sought theoretical guidance from Kim's theory of cross-cultural adaptation (Akhtar et al., 2015; An & Chiang, 2015; Peng & Wu, 2019), and another two articles (Hu et al., 2020; Li & Li, 2016) used the person-environment fit theory to unveil mechanisms of how IS-China achieve adjustment in the culturally complex host environment. Theories employed in a single article included (a) socio-educational model of second language acquisition; (b) Tinto's interactionist model; (c) Bandura's theory of self-efficacy; (d) cultural and contextual model of coping; (e) social exchange theory; (f) the framework of multicultural personality; (g) communication theory of identity; (h) CAGE distance framework (i.e. cultural, administrative, geographic, and economic distance).

Predictors of general cross-cultural adjustment

Three studies in our review did not differentiate domains of adjustment, but examined general cross-cultural adjustment as the outcome (i.e. Li et al, 2012; Peng & Wu, 2019; Zhu & Krever, 2017). These studies revealed that general adjustment can be predicted by four clusters of predictors:

demographics, personal resources, contextual resources and other variables (see Fig. 3a). Demographics included level of education and place of origins. Among them, level of education was consistently revealed as a positive predictor of adjustment (Li et al., 2012; Zhu & Krever, 2017). Personal resources included Chinese language proficiency, cultural intelligence, psychological capital and host communication competence, all of which were positively related to adjustment. Contextual resources included social support, host-national communication and social media usage, all of which positively predicted adjustment. Host-national communication (Peng & Wu, 2019) and social media usage (Zhu & Krever, 2017) were categorized into this cluster according to its definition offered previously. Specifically, the former taking place in the real context can enable international students to learn host-nationals' cultural traditions, behavioral features and expectations to facilitate their transitions (Cao & Meng, 2020), while the latter taking place in the online context can help international students acquire resources (e.g. information and social support) necessary for their cross-cultural adjustment (Seo, 2016). Based on the contact hypothesis (Allport, 1954), intergroup contact

can effectively alleviate prejudice and promote mutual inter-group relations.

Researchers also found another variable related to general adjustment. Peng and Wu (2019) found an essential pathway from intercultural transformation (basic and advanced) to adjustment. Kim (2001) viewed this construct as functional fit, psychological well-being and identity. Therefore, the construct represents adaptive changes in minority members and should be treated as a specific type of adjustment. As such, it was grouped into the “other variables” cluster. Additionally, more complex relationships were revealed by Li et al. (2012) in which psychological capital and social support can be moderators boosting the positive relationship between cultural intelligence and general adjustment.

Predictors of psychological adjustment

Thirteen studies reported predictors of psychological adjustment and related outcomes, including life satisfaction, mental health, acculturative stress, general stress, depression, and loneliness. Their predictors can be categorized into six clusters: demographics, personal and contextual resources,

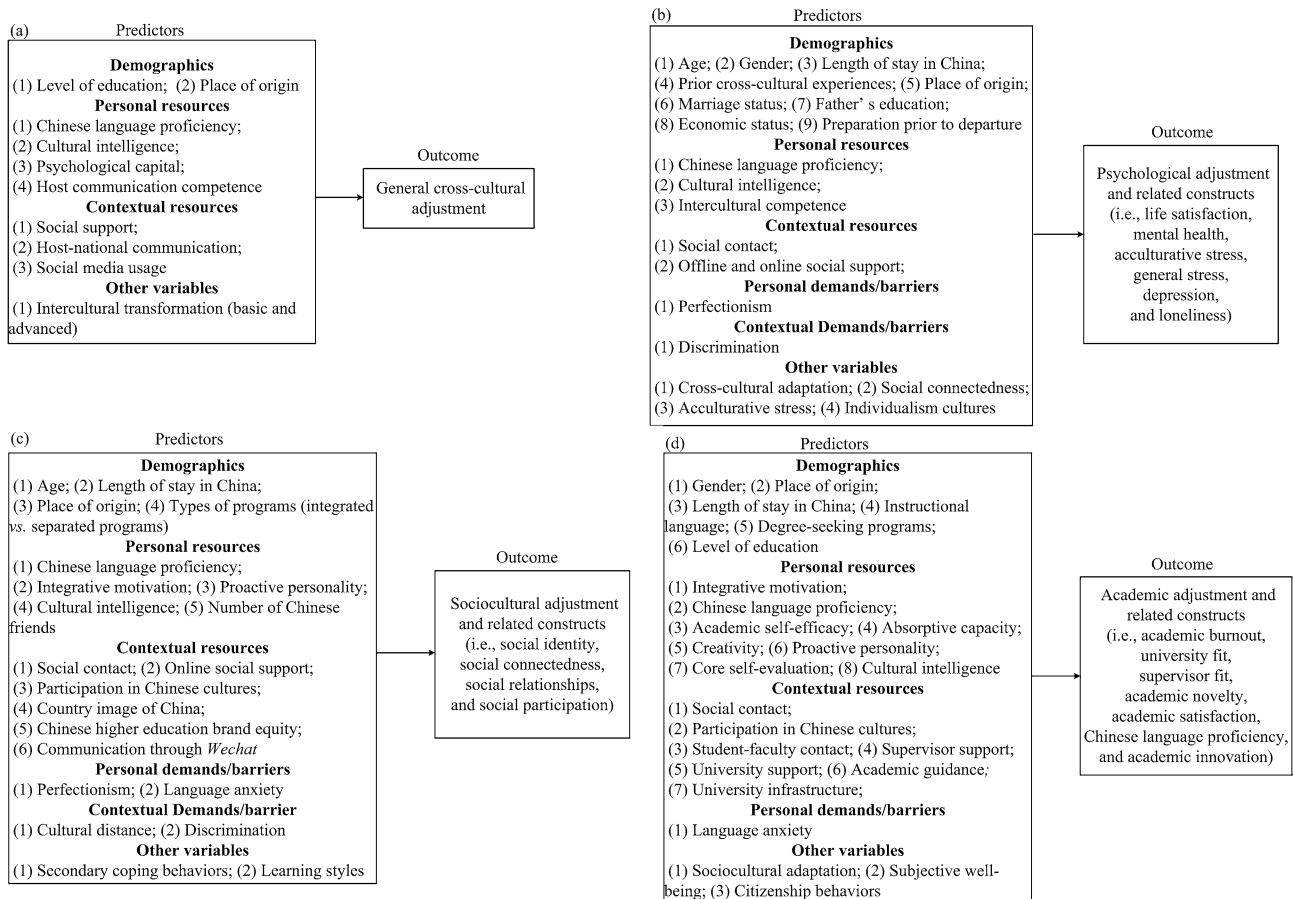


Fig. 3 Predictor clusters for different domains of cross-cultural adjustment

personal and contextual demands/barriers, and other variables (see Fig. 3b). The most frequently reported demographics were place of origin, marriage status, prior cross-cultural experiences and economic status. Concerning place of origin, Yu et al. (2014) and Liu et al. (2016) consistently found that Asian and African students experienced more acculturative stress or depression than their Western peers. Concerning marriage status, the same two studies found that unmarried students had lower levels of acculturative stress or depression than their married counterparts. Prior cross-cultural experiences were revealed to be beneficial for psychological adjustment (Akhtar et al., 2015; Gebregergis et al., 2019; Xie & Liu, 2009). However, researchers yielded mixed findings concerning economic status in that Chu et al. (2015) found its positive relationship with stress, while Chen and Lin (2017) found its negative relationship with depression.

The predictors falling within the clusters of personal and contextual resources (see Fig. 3b) were found to be instrumental for psychological adjustment. Only one predictor was in the cluster of personal demands/barriers, namely perfectionism describing individuals who pursue flawlessness and set high performance standards. This personality negatively predicted social connectedness, but positively predicted acculturative stress and depression (Li & Li, 2016). It makes sense that this personality involves self-imposed burdens associated with physio-psychological costs. Likewise, there was only one predictor in the cluster of contextual demands/barriers, namely discrimination which was found to negatively predict psychological adaptation in English and Zhang (2019) study. The final cluster of other variables included social connectedness, cross-cultural adaptation, acculturative stress and individualism cultures. The former three variables represent different types of adjustment, either in the sociocultural or psychological domain, while the last one is a specific type of national cultures. Jiang & Shypenka (2018) examined the predictor of individualism cultures by assigning the Hofstede's National Individualism Index to international students based on their nationality and found that those from high individualistic societies suffered less from loneliness. While a contextual factor on the sociocultural level, it is obviously inappropriate to classify individualism cultures into either the resources cluster or the demands/barriers cluster.

A few studies offered more insight into psychological adjustment by examining mediated and moderated relationships. Wang et al. (2015) established gender as a moderator, indicating that the positive relationship between online social support and psychological adaptation was stronger for females than for males. English and Zhang (2019) evidenced coping behaviors as moderators, showing the relationship between discrimination and psychological adaptation was significant at low rather than at high primary coping (i.e. a

coping strategy featured by behaving actively to handle the stressors or modify features of the environment to meet one's needs; Rothbaum et al., 1982). In addition, the relationship between discrimination and stress was significant at low rather than at high secondary coping (i.e. a coping strategy for reducing stress through an inward-directed psychological process, such as accepting the stress-provoking situation as it is; Skinner et al., 2003). Acculturative stress mediated the relationships of perfectionism and social connectedness (Li & Li, 2016) and cultural intelligence (Gebregergis et al., 2019) to depression.

Predictors of sociocultural adjustment

Fourteen studies addressed sociocultural adjustment and related outcomes, including social identity, social connectedness, social relationships, and social participation. Their predictors were categorized into six clusters: demographics, personal and contextual resources, personal, contextual demands/barriers, and other variables (see Fig. 3c). Among the demographics, length of stay was a negative predictor of sociocultural adjustment (Xie & Liu, 2009). International students from Western countries achieved better sociocultural adjustment than those from other regions (English et al., 2015; Yu & Downing, 2012). Regarding program types, international students taught in integrated programs achieved better sociocultural adjustment than those in separated programs (Wen et al., 2018).

Personal resources included Chinese language proficiency, integrative motivation, proactive personality, cultural intelligence, and number of Chinese local friends. Chinese language proficiency was the most frequently reported predictor and consistently found to be positively related to sociocultural adjustment (Lawani et al., 2012; Xie & Liu, 2009; Yu & Downing, 2012). Besides, the reviewed studies revealed international students high in integrative motivation (Yu, 2010; Yu & Downing, 2012), proactive personality and cultural intelligence (Hu et al., 2020), and the number of Chinese friends (Jin & Zhang, 2017) tended to achieve better sociocultural adjustment. Predictors in contextual resources can be various, ranging from situational ones (e.g. interpersonal communication through *Wechat*), to institutional ones (e.g. Chinese higher education brand equity), and then to sociocultural ones (e.g. participation in Chinese cultures) (see Fig. 3c). *Wechat* is a very popular social media in China. Echoing Zhu & Krever (2017), the findings regarding *Wechat* further demonstrated important roles of host social media usage in international students' adjustment (Jin & Zhang, 2017). Personal demands/barriers included perfectionism and language anxiety (a type of personal deficiencies) which were found to be negative in social spheres (Li & Li, 2016; Yu, 2010). The cluster of contextual demands/barriers included cultural distance

and discrimination which negatively affected sociocultural adjustment (English & Zhang, 2019). Predictors in the final cluster of other variables were coping behaviors and learning styles. More specifically, English et al. (2015) found that secondary coping was negatively associated with sociocultural adjustment. In Zhong and Gao (2014) study, it was found that reflective learning style (i.e. a preference for active and reflective thinking in learning activities) was positively associated with sociocultural adjustment, whereas intuitive learning style (i.e. a preference for intuitive sense in learning activities) was negatively associated with sociocultural adjustment.

Predictors of academic adjustment

This review can be the first work aggregating current knowledge of international students' academic adjustment beyond psychosocial adjustment. Indeed, growing work (twelve studies in our review) has begun to explore factors promoting or inhibiting academic adjustment and related outcomes among IS-China. Chinese language proficiency was included as one of the outcomes because Yu (2010) and Wang and Hannes (2014) established it as an essential indicator of academic adjustment for international students. These predictors were categorized into five clusters: demographics, personal and contextual resources, personal demands/barriers and other variables (see Fig. 3d). Among demographics, level of education was a consistent positive predictor of academic outcomes (Hu et al., 2020; Wen et al., 2018; Xie & Liu, 2009). Again, Western students seemed to outperform Asian and African students in integrative motivation and Chinese language proficiency (Yu & Watkins, 2008). However, findings concerning length of stay were mixed in that Xie and Liu (2009) found it positively predicted academic adjustment, while Yu (2010), Wen et al. (2018) and Hu et al. (2020) revealed it as a negative predictor.

Personal resources included integrative motivation, Chinese language proficiency, academic self-efficacy, absorptive capacity, creativity, proactive personality, core self-evaluation and cultural intelligence. Compared to psychosocial adjustment, scholars seemed to have placed more emphasis on individual differences in academic adjustment. With these various personal resources available at their disposal, IS-China may have stronger confidence and firmer beliefs in addressing unfamiliar academic demands and pursuing desirable academic performance. Contextual resources were documented to play a vital role in facilitating academic adjustment. Further, scholars have increasingly looked at institutional aspects in examining contextual antecedents, including university support, university infrastructure, academic guidance, supervisor support and student-faculty contact. In the cluster of personal demands/barriers, there was only one factor of language anxiety that was revealed to

have a negative relationship with academic adjustment (Yu, 2010). The final cluster of other variables included sociocultural adaptation, subjective well-being and citizenship behaviors that represent different manifestations of psychological or sociocultural adjustment. Citizenship behaviors tend to be viewed as individuals' behavioral performance and adjustment because these behaviors, though not explicitly required, can support organizational effectiveness (Meriac, 2012). These studies demonstrated that the three adjustment domains were not independent of one another. As indicated by the results, they generally documented academic adjustment as the consequence of psychological and sociocultural adjustment (Fan et al., 2019; Teye et al., 2018; Yu, 2010).

A few studies contributed more to the literature by unveiling mediated pathways to academic outcomes. Fan et al. (2019) revealed that citizenship behaviors and creativity were chain mediators in the relationship between supervisor support and academic innovation. Hu et al. (2020) found that cultural intelligence mediated the relationships of proactive personality to social and academic adjustment, and that social adjustment mediated the relationship between cultural intelligence and academic adjustment.

Discussion and agenda for future research

This work presents the first systematic review on predictors of psychological, sociocultural and academic adjustment of IS-China. We also incorporated an inter-disciplinary perspective by anchoring this review in the JD-R theory and collapsing the various predictors into different clusters. Although the studies in our review contributed much valuable knowledge, there are still many factors unexamined, issues unresolved, and questions unasked. Next, these aspects will be discussed in terms of opportunities for future theoretical and empirical advancement.

Agenda for theoretical advancement

It is critical for future research to draw on existing theories to elucidate mechanisms and processes underlying cross-cultural adjustment. An appropriate and overarching theory can better inform what factors need to be researched and what breakthroughs may be made. Obviously, many relevant theories have been ignored, but should be applied or deserve attention. For example, ABC framework (Ward et al., 2001) and anxiety/uncertainty management theory (AUM; Gudykunst 2005), both of which have traditionally acted as fundamental theories in intercultural literature during the past two decades, were absent in these studies of IS-China adjustment. The ABC framework incorporates an overarching perspective by outlining adjustment as a dynamic process

influenced by various affective, behavioral, and cognitive aspects. AUM posits that intergroup anxiety and uncertainty may undermine intercultural communication effectiveness and cross-cultural adjustment.

Furthermore, some new trends can be noted in introducing inter-disciplinary theories to the international student adjustment literature. Typical examples include self-determination theory (SDT; Deci & Ryan, 2000), social cognitive career theory (SCCT; Lent, 2004), and theory of planned behaviors (TPB, Ajzen et al., 2009). The SDT focuses on individual factors while the SCCT and TPB consider both individual and contextual factors. The SDT argues that if basic psychological needs (autonomy, competence and relatedness) are satisfied, individuals' intrinsic and extrinsic motivation for task engagement may be bolstered. In turn, their performance or achievement may be enhanced. Employing the SDT, Yang, Zhang, et al. (2018), Yang, Zhang, et al. (2018)) examined international students in the U.S. and found that basic psychological needs satisfaction negatively predicted culture shock and positively predicted subjective well-being. The SCCT combines various individual factors (e.g. personality trait and domain-specific self-efficacy) and contextual factors (e.g. environmental support) into a unified framework. Employing the SCCT, In (2016) sampled Korean international students and found the relationships of career decision self-efficacy with acculturation and enculturation. The TPB argues that individuals' behavioral intention can be determined by individual factors (attitudes, subjective norms and perceived behavioral control) and environmental constraints. Employing the TPB, Wu and Mak (2012) longitudinally examined Chinese mainland students in Hongkong and found that all three individual factors positively predicted their intentions to adopt local mainstream cultures, which subsequently impacted social adjustment and distress. One strength of the reviewed studies is having emphasized roles of personality traits (i.e. perfectionism, proactive personality, and cultural intelligence). Surprisingly, however, none of them utilized the widely applied the Big-Five Personality Model (conscientiousness, neuroticism, extraversion, agreeableness and openness; Goldberg, 1992) to comprehensively understand the personality-adjustment relationship. For instance, on the bright side, there is a need to understand which personality traits can best predict host culture adoption, intercultural friendships, social capital, belonging, preference for proactive coping, and academic integrity. On the dark side, it is valuable to illuminate which traits can best predict loneliness, intergroup anxiety/avoidance, acculturative stress, academic burnout and even quit intentions. These above-mentioned theories, either traditional or emerging, hold promise for future research to identify various individual and contextual predictors of IS-China adjustment.

Our review showed that the JD-R has the potential to serve as an important theoretical framework for examining

international student adjustment for three reasons. First, based on the JD-R, predictors of IS-China adjustment were categorized into the four clusters (personal/contextual resources and personal/contextual demands) with the exceptions of demographics and other variables. Furthermore, most predictors in the cluster of other variables are actually manifestations of adjustment (e.g. acculturative stress, subjective well-being and social connectedness). The JD-R is very essential to overcome the limitation that prior studies of international student adjustment tended to examine either individual-level or context-level variables, but not examined both, as pointed out by Sarmiento et al. (2019). Second, the JD-R also proposed dual processes: the health impairment process and the motivational process (Bakker & Demerouti, 2007; Schaufeli & Taris, 2014). The two processes incorporate mediation assumptions. Specifically, job stress (or burnout) and motivation (or engagement) may mediate the relationships of demands and resources to performance (Schaufeli & Taris, 2014). Such mediations are worth testing among international students. For example, acculturative stress and intercultural engagement can be potential mediators between various resources and demands/barriers and different domains of adjustment. Third, although some theories (e.g. SCCT, TPB and person-environment fit theory) stress roles of both individual and contextual factors, they cannot account for the potentially interlocking nature underlying the two-level factors. In this regard, the JD-R can complement these theories by arguing resources can interact with demands to predict stress (burnout) and motivation (engagement) (Bakker & Demerouti, 2017). As one example, personal and job resources may buffer the relationship between job demands and stress (or burnout). Hence, the JD-R can offer important theoretical guidance for testing these moderation assumptions among international students to unveil how personal and contextual factors, as well as resources and demands/barriers, can work jointly to affect acculturative stress, intercultural engagement and adjustment. To sum up, the empirically testable JD-R featured by broad scope and flexibility and incorporating both mediation and moderation assumptions may provide many new perspectives for researching international student (or even other minority groups) adjustment.

Agenda for empirical advancement

The current review highlighted several subgroups of IS-China for special scholarly attention and educational interventions to facilitate their adjustment. The first subgroup was Asian and African students because they were consistently found to achieve lower levels of psychological, sociocultural and academic adjustment than their Western counterparts (Liu et al., 2016; Yu & Downing, 2012; Yu & Watkins, 2008; Yu et al., 2014; Zhu & Krever, 2017). This

finding was out of our expectation because Zhang and Goodson (2011) in their review of international student adjustment found that Western students in the U.S. were better adjusted due to less perceived cultural differences. Interestingly, despite enormous cultural differences between China and Western countries, Western students also seemed to have achieved better adjustment in China. Plausibly, three reasons may account for this finding. First, as revealed by Rienties et al. (2012), non-Western international students (e.g. Asian and African students) tended to encounter more acculturative stressors (e.g. academic/social disintegration and discrimination) than their Western counterparts, especially at the first-year sojourn stage. Second, compared to Asian international students, Western international students were generally more proactive in coping with stressors (English et al., 2015), which can facilitate achieving optimal cross-cultural adjustment. Third, in Eap et al. (2008) comparative study, European Americans were found to exhibit higher levels of extraversion than those of Asian origins, thus facilitating intercultural relationships and consequently enhancing sociocultural adjustment. Future research is also encouraged to delve deeper into this topic by, for example, qualitatively and comparatively exploring perceptions of Western, Asian and African students. The second subgroup was married students who were revealed to suffer from more acculturative stress and depression than their unmarried peers (Liu et al., 2016; Yu et al., 2014). Reasonably, those married students may be more psychologically distressful because many of them had to leave spouses and/or children in their home countries and were thereby unable to take family responsibilities. The third subgroup was undergraduate international students because level of education was consistently found to positively predict cross-cultural adjustment, in particular academic adjustment (Hu et al., 2020; Li et al., 2012; Wen et al., 2018; Xie & Liu, 2009; Zhu & Krever, 2017). This finding echoes the argument that undergraduate and graduate international students should be researched separately or comparatively since they may be distinctive from each other with regard to outcome expectations, relationship status, and physical maturation (Brunsting et al., 2018). The demographic of length of stay in China needs further investigation because it received rather mixed results in predicting cross-cultural adjustment. Hence, future longitudinal studies are warranted to track IS-China adjustment trajectories over time.

Besides the demographics, our work needs to suggest some vital factors that are not yet investigated or under-investigated. One such factor is intergroup contact. Although a few reviewed studies attended to this variable, they simply examined its direct relationships with psychosocial and academic outcomes. Nonetheless, the current knowledge of intergroup contact has gone far beyond the simple and direct relationships. One obvious research stream has extended

the focus from direct contact to indirect modes of contact (e.g. imagined, extended, mediated and online intergroup contact). Another stream unpacked the complex working mechanisms underlying effects of intergroup contact. For instance, the relationship between intergroup contact and adjustment can be mediated by host culture adoption (Lebedeva et al., 2016) and global competence (Cao & Meng, 2020). Further, indirect contact can function as moderators that modified effects of direct contact on intergroup relations and competence (Cao & Meng, 2020; Dhont & Van Hiel, 2011). These important findings, among many others, need to be replicated among IS-China to help design effective educational interventions. It is surprising that only one reviewed study examined coping (primary and secondary coping as moderators) (English & Zhang, 2019). Given that coping occupies a central position in the acculturation process (Ward et al., 2001), future research can continue this line or use other coping scales (e.g. CISS with task-, emotion-, and avoidance-oriented coping; Endler & Parker, 1994) to understand coping behaviors of IS-China and how the behaviors impact their adjustment process. We would urge researchers to examine roles of specific Chinese cultural features (e.g. collectivism, high power distance, and high context culture) in cross-cultural adjustment of different cultural groups among IS-China, which can be an intriguing question not yet answered. In general, the reviewed studies overwhelmingly focused on personal and contextual resources (see Fig. 3). The under-investigated variables of personal and contextual demands/barriers hold more promise for future research, including negative affect, intergroup anxiety/avoidance, outcome expectations, learning goal orientation, academic workload and pressure, and assimilation expectations from host members. One strength noted in the reviewed studies was that researchers have increasingly focused on social media usage, which is vital due to the widespread use of internet and smartphones. Altogether 5 reviewed studies included this variable, whereas there was only one such study in Zhang and Goodson (2011) review from 1990 to 2009. Despite this strength, future research would contribute more if they differentiate functional roles of host social media (e.g. *Wechat* and *QQ* used in China) and alien social media (e.g. *Facebook* and *Twitter* used in other countries). Other examples that should be differentiated and compared include social support resources (e.g. support from family, co-national, multi-national and domestic students, and host institutions) and language abilities (Chinese and English language proficiency). Finally, it requires attention that when predicting academic adjustment, scholars particularly focused on academic cognitive factors (e.g. academic self-efficacy, absorptive capacity, academic creativity and core self-evaluation) (see Fig. 3d), but neglected academic behavioral factors (e.g. academic engagement, academic procrastination, self-regulated learning, collaborative

learning and help-seeking behaviors) and academic affective factors (e.g. academic anxiety and fear of failure). Examining these behavioral and affective factors may further enrich our knowledge of how academic adjustment can be developed and facilitated.

As regards research design, there were only three longitudinal studies in our review. Although recruiting the same large group of international students at different timepoints can be difficult, researchers need to refrain from the typical reliance on cross-sectional data. Interventions and longitudinal studies are needed to seek for causal relationships, rule out common method bias, and track adjustment trajectories over time. In terms of statistical analysis, it was noted that limited work in this review attempted to explore mediated and moderated relationships. Such studies are also needed to help scholars understand complex working mechanisms of variables and help administrators upgrade service programs informed by the evidenced-based mechanisms. Multilevel analyses can be also useful because this approach allows for testing contextual variations across individuals and individual differences within a specific context.

Limitations and conclusion

Several limitations need to be noted for the current review. First, there is a possibility that not all relevant articles were identified, especially for an inter-disciplinary topic, like ours, that involves a wide range of journals. Second, a meta-analysis would have better captured the importance of predictors, but cannot be conducted due to the wide range of predictors and outcomes reported and operationalized by the reviewed studies. Third, qualitative research containing findings of IS-China adjustment was excluded from this review; however, we did so because our research aimed to summarize predictors of adjustment based on statistical correlates.

Despite these limitations, our review can make contributions to the literature on higher education and cross-cultural psychology. Situated within the JD-R, our study offered the first systematic review of predictors of the three dimensions of cross-cultural adjustment (i.e. psychological, sociocultural, and academic adjustment) of international students in China. The strengths of the current literature include that (a) diverse predictors were revealed, including personal and contextual ones, as well as positive and negative ones; (b) several subgroups of IS-China who may be particularly suffering were identified (e.g. Asian and African students, married students, and undergraduate students); (c) effectiveness of social media usage received increasing scholarly attention. However, through the critical review, it can be noted that there is still much scope to expand this literature in the future by, for example, (a) utilizing more diverse theories (e.g. JD-R the, TPB, and SCCT); (b) placing more emphasis

on predictors in the personal and contextual demands/barriers clusters; (c) employing longitudinal designs; (d) controlling for Chinese cultural features; (e) examining complex working mechanisms (e.g. mediation and moderation effects). The research strengths and gaps highlight opportunities for the theoretical and empirical advancement, as well as educational interventions for facilitating cross-cultural adjustment.

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