Negotiation Without Borders: The Power of Cultural Intelligence in Global Deal-Making

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Abstract
In today's globalized business environment, successful negotiation increasingly depends on intercultural competence. This study investigates the relationship between cultural intelligence (CQ) and negotiation self-efficacy (NS) among German and Chinese business professionals, two culturally distinct and economically influential groups. Using structural equation modeling (SEM), CQ was conceptualized as a second-order construct comprising cultural metacognition, cultural skills, and cultural knowledge dimensions. The analysis confirms that CQ positively predicts NS across the full sample and reveals cultural differences in how CQ dimensions contribute to negotiation confidence. Metacognitive CQ was most influential among Chinese professionals, whereas cultural skills played a larger role among German participants. These findings underscore the value of SEM for modeling complex psychological constructs and highlight CQ as a key resource for effective negotiation in intercultural contexts. The study provides both theoretical contributions and practical implications for cross-cultural training and global leadership development. Beyond general international business settings, the findings offer valuable insights for globally integrated sectors such as mining and raw-materials value chains, where intercultural negotiations shape long-term partnerships, technology transfer, and sustainability agreements. This underscores the role of cultural intelligence as a strategic competency for negotiation success in the extractive industry and related strategic sectors.

Keywords
intercultural management; cultural intelligence; negotiation self-efficacy; intercultural negotiation; structural equation modelling; cross-cultural psychology; mining industry

Introduction

In today's globalized economy, negotiation across cultural boundaries has become a central element of international business. Whether forging alliances, resolving conflicts, or closing deals, professionals are increasingly required to interact and negotiate with partners whose cultural norms, communication styles, and expectations differ markedly from their own. The COVID-19 pandemic accelerated digital transformation and reshaped how professionals interact across borders, intensifying the need for cultural intelligence also in virtual negotiation contexts (Hýžová et al., 2024). Yet, intercultural negotiations are fraught with challenges, as misunderstandings, misaligned expectations, and divergent values often lead to friction or failure (Gunia et al., 2014, 2015; Liu et al., 2012). Navigating these complexities successfully requires more than technical expertise; it demands cultural adaptability, empathy, and confidence.

To manage these challenges effectively, scholars have turned their attention to constructs that support intercultural competence, most notably, CQ. Originally conceptualized by Earley and Ang (2003), CQ refers to a person's capability to function effectively in intercultural situations. Extensive research has linked CQ to a variety of positive outcomes, including expatriate adjustment (Lee & Sukoco, 2010), global leadership effectiveness (Rockstuhl et al., 2011), and cross-cultural job performance (Ang et al., 2007). However, despite its demonstrated utility, the specific link between CQ and negotiation-related psychological outcomes, particularly NS, remains underexplored.

NS is defined as an individual's belief in their ability to prepare for, engage in, and succeed in negotiation scenarios (Bandura, 1997; Richards et al., 2020). Higher NS has been shown to predict better negotiation performance, greater persistence, and more positive negotiation attitudes (Curhan et al., 2006; Wawrosz & Jurásek, 2021). Given that intercultural negotiation demands not only cognitive agility but also emotional and behavioral adaptability, it is plausible that individuals with higher CQ, particularly in cultural knowledge, social agility, and metacognitive awareness, will feel more capable and confident when negotiating across cultures.

Several studies have examined CQ's impact on general self-efficacy (Jiang, 2012), sales efficacy (Charoensukmongkol & Pandey, 2020), and intercultural adjustment (Sultan & Tareen, 2014), yet few have explored its role in shaping NS—especially in real-world intercultural business contexts. Existing research also often relies on student samples, limiting generalizability. Although recent work shows intercultural sensitivity predicts NS among professionals (Župina et al., 2025), CQ's predictive role remains underexplored. This study addresses that gap by examining how CQ predicts NS among German and Chinese professionals—two major economies that differ in negotiation style, communication preferences, and cultural orientation (Hennig-Schmidt et al., 2024; Hennig-Schmidt & Walkowitz, 2015; Lügger et al., 2015).

In addition to contributing to theory on both CQ and negotiation psychology, this study has practical value. Organizations with global operations increasingly depend on culturally intelligent employees who can negotiate effectively across cultural divides. Understanding how different dimensions of CQ influence NS and how this varies across cultures can inform training programs, selection processes, and international assignment strategies.

This research uses a validated short-form CQ instrument, comprising three core dimensions: cultural metacognition (awareness and planning of intercultural interactions), cultural skills (interpersonal effectiveness in diverse environments), and cultural knowledge (understanding of cultural systems, values, and practices). While CQ is often conceptualized in four dimensions (metacognitive, cognitive, motivational, and behavioral (Thomas et al., 2015), this study adopts a refined three-factor structure based on empirical validation in business contexts (Alexandra et al., 2021; Bücker et al., 2015).

To test these assumptions, the present study applies an SEM framework to examine whether and how CQ predicts NS in a sample of German and Chinese professionals. By modeling the three core CQ dimensions - cultural metacognition, cultural skills, and cultural knowledge - as second-order factors and evaluating their contributions to NS, the study not only assesses the robustness of the CQ construct but also explores its functional relevance in high-stakes intercultural negotiation contexts. Furthermore, comparing structural relationships across two culturally distinct national groups allows for deeper insight into whether CQ functions universally or is shaped by cultural context.

The goal of this study is to examine the extent to which CQ predicts NS among German and Chinese business professionals, and to explore whether the strength and structure of this relationship differ across these two culturally distinct groups.

Based on these theoretical foundations and the outlined objectives, we propose the following hypotheses:
- H1: CQ positively and significantly predicts NS in the overall sample.
- H1a: CQ positively and significantly predicts NS among German professionals.
- H1b: CQ positively and significantly predicts NS among Chinese professionals.
- H2: The metacognitive dimension positively contributes to the overall CQ factor.
- H3: The cultural skills dimension positively contributes to the overall CQ factor.
- H4: The cultural knowledge dimension positively contributes to the overall CQ factor.
- H5: The strength of the CQ–NS relationship differs by culture.

Literature Review

The goal of this study is to examine the extent to which CQ predicts NS among German and Chinese business professionals, and to explore the strength and structure.

Intercultural negotiation challenges

As global business continues to expand across borders, intercultural negotiation has emerged as a critical competence in organizational life. Negotiating successfully across cultures requires more than tactical skill or domain cultural knowledge; it involves navigating complex cultural values, communication norms, and behavioral expectations (Gunia et al., 2015; L. A. Liu et al., 2010). These challenges are particularly salient in intercultural contexts where misinterpretations, reduced information sharing, and diminished relational trust can undermine negotiation outcomes (Adair, 2003; Brett, 2017).

Role of cultural intelligence in career and business performance

In this environment, CQ has gained traction as a promising construct that equips individuals to operate effectively in culturally diverse settings (Ang & Van Dyne, 2008; Earley & Ang, 2003). CQ has been shown to predict a wide range of outcomes, including cross-cultural adjustment (Lee & Sukoco, 2010), expatriate performance (Ang et al., 2007), global leadership (Rockstuhl et al., 2011), intercultural cooperation (Liao & Thomas, 2025; Mor et al., 2013), international expansion among SMEs (Mammadov & Wald, 2025), and career satisfaction (Min et al., 2023; Shagerdi et al., 2023). Bal and Kökalan (2022) further demonstrated that CQ moderates the relationship between job satisfaction and career commitment. In digital business contexts, Hammami (2025) found that CQ-driven trust-building strategies can directly enhance negotiation performance in e-commerce platforms, highlighting CQ's growing relevance across both face-to-face and virtual domains.

The link between CQ and NS

Because intercultural negotiation often heightens ambiguity and anxiety (Adler & Graham, 1989; W. D. Gudykunst, 1995), self-efficacy becomes especially crucial in building confidence and managing interaction complexity. Despite the growing literature on CQ, its relationship with NS remains understudied. NS refers to a negotiator's belief in their ability to perform successfully in negotiation situations (Lam & Liaw, 2017; O'Connor & Arnold, 2001) and predicts persistence, goal orientation, and performance under pressure (Curhan et al., 2006; Miles & Maurer, 2012). In ambiguous and high-stakes intercultural contexts, NS becomes critical. Individuals with high CQ are more likely to feel confident when negotiating across cultures, thereby reinforcing their self-efficacy (Charoensukmongkol & Pandey, 2020; Jiang, 2012). Recent work by So (2024) further supports this by identifying metacognitive CQ as the most influential dimension for successful cross-cultural negotiation, particularly in high-ambiguity contexts.

CQ in negotiation contexts

Recent research also underscores the interpersonal dimension of negotiation. For example, Boothby et al. (2023) highlight the importance of perspective-taking and social calibration, showing how misjudging others' thoughts can derail negotiation outcomes. Similarly, Wilken et al. (2013) found that employing cultural moderators can enhance negotiation outcomes regardless of cultural background. These findings reinforce the value of CQ not just as a cultural knowledge set but as a behavioral and interpersonal competency that fosters adaptive negotiation strategies. This is echoed by Grosz et al. (2024), who show how institutional and cultural awareness, driven by CQ, enhances negotiation outcomes in developing markets. Similarly, biculturals, who often exhibit high CQ, act as cultural bridges in international negotiations through adaptability and frame switching (Khakhar et al., 2023).

Research suggests that CQ supports better negotiation outcomes. Groves et al. (2015) found that behavioral and cognitive CQ predicted integrative negotiation performance. Metacognitive CQ enhances adaptability and satisfaction (Chua et al., 2012; Varela, 2018), while Karsaklian (2015) emphasized real-time strategy adjustment. CQ has also been linked to greater agreeableness (Ang et al., 2006; Digman, 1990; Kim et al., 2008) and better cross-cultural style adaptation (Caputo et al., 2019). Lam and Liaw (2017) found that CQ indirectly influenced negotiation performance via NS in a Vietnamese sample; however, they did not test direct effects or cross-cultural comparisons.

Cross-cultural negotiation differences

While CQ is generally linked to positive outcomes in intercultural negotiation, its influence is not uniformly beneficial. Tinsley et al. (2012) found that over-adjusting to perceived cultural norms, especially through stereotype-based mimicry, can lead to mutual frustration and negotiation breakdowns. Similarly, Brislin et al. (2006) warned that high CQ could be misused to manipulate others, such as through deceptive tactics. Groves et al. (2015) further cautioned that overconfident individuals with high CQ might ignore peer input and engage in

risky decisions. Even among culturally competent negotiators, Boothby et al. (2023) highlighted the interpersonal dangers of misreading intentions, reinforcing that CQ alone is not a safeguard against failure.

Research gap

In sum, literature supports CQ as a key antecedent of negotiation success, especially where uncertainty and ambiguity dominate. Yet, no existing studies have directly tested the predictive relationship between multidimensional CQ and NS in real-world business environments or across culturally distinct samples such as Germany and China. By focusing on this relationship, the present study extends CQ and negotiation theory, offering new cross-cultural insights into how professionals navigate complex intercultural negotiation dynamics.

Research methodology

Research sample

The final sample comprised 376 business professionals from two culturally distinct countries: Germany ($n =$ 224) and China ($n = 152$). The gender distribution was 255 males and 121 females. The majority of respondents reported high levels of formal education: 30.9% (n = 116) held a bachelor's degree, 52.1% (n = 196) a master's degree, and 8.8% (n = 33) held postgraduate qualifications. An additional 8.2% ($n = 31$) reported other educational backgrounds.

Participants demonstrated strong international exposure and intercultural engagement. A total of 96.5% ($n = 363$) reported regularly interacting with individuals from different cultural backgrounds. Regarding frequency of intercultural contact, 63.3% ($n = 238$) reported daily interactions, 22.9% ($n = 86$) interacted weekly, and smaller proportions interacted monthly (7.2%, $n = 27$), annually (4.0%, $n = 15$), or less than once per year (2.7%, $n = 10$).

Respondents had also accumulated notable international experience. On average, participants had lived in approximately 2.71 countries for more than six months (median = 3), and reported an average of 1.10 years spent living abroad. Additionally, they indicated having an average of 11.7 years of international or intercultural professional experience, underscoring the relevance of the sample for examining cross-cultural competencies in negotiation contexts.

While the sample includes two highly relevant national groups for cross-cultural business research, its restricted geographical scope represents a limitation. Future research should aim to diversify the sample by including professionals from a broader range of European, Asian, and other global contexts to enhance generalizability and cross-cultural insight.

Risky decisions. Even among culturally competent negotiators, Boothby et al. (2023) highlighted the interpersonal dangers of misreading intentions, reinforcing that CQ alone is not a safeguard against failure.

While the study sample is not sector-specific, the methodological approach and validated constructs used in this research are applicable across internationally oriented industries. This includes strategic sectors such as mining and raw-materials logistics, where cross-cultural cooperation, contract negotiation, and international partnership management are essential for operational and sustainability outcomes.

Data collection procedure

Data for this study were collected between November 2024 and February 2025 using an online questionnaire hosted on the Qualtrics platform. Given the challenges of reaching professionals with international business experience through random sampling, a snowball sampling method was employed. Initial participants who met the inclusion criteria - namely, experience with intercultural business or negotiation - were asked to refer other eligible individuals within their networks.

Before starting the questionnaire, participants were presented with a brief description outlining the study's purpose, the anonymous and voluntary nature of participation, and details regarding data confidentiality. Participation in the questionnaire implied informed consent for the anonymous and aggregated use of their responses in academic research.

The survey consisted of 15 items in total, covering two constructs: CQ (10 items and 3 subfactors) and NS (5 items). All responses were recorded on a 5-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. Participants received the survey in the language of their country of residence: German for respondents in Germany and Chinese for those in China. The translation procedures for the two mentioned surveys to ensure cross-language equivalence are described in the next section.

Research instrument and its psychometric properties

CQ was measured using the 10-item short form cultural intelligence scale (SFCQ), developed by Thomas et al. (2015). This scale is grounded in the three-facet model of CQ, capturing cultural metacognition (3 items), cultural knowledge (2 items), and cultural skills (5 items). Developed through over a decade of conceptual and empirical work Thomas & Liao (2023), the SFCQ was validated across a sample of 3,526 participants representing five language groups worldwide and has been further supported by several recent studies (Cerdin & Akkan, 2023;

Darici et al., 2025; Li et al., 2023; Reed et al., 2023). It was specifically designed for use in organizational and business contexts, offering a time-efficient yet psychometrically robust alternative to the longer cultural intelligence scale, which is less practical for busy professionals in applied settings.

While only the English version was included in the original publication, the Chinese version was provided directly by the authors via e-mail. The German version used in this study was produced through a rigorous multi-step process: initial translation by native speakers, expert review by bilingual professionals, and a forward–backward–forward translation procedure to ensure semantic and conceptual equivalence. A complete overview of the English items and their subdimension assignments is provided in Table 1.

Tab. 1. CQ and NS scale items and their corresponding dimensions.

Abbr.	Item	Dimension
	Cultural Intelligence Scale	
CQ1	I know the ways in which cultures around the world are different.	Cultural Knowledge
CQ2	I can give examples of cultural differences from my personal experience, reading, and so on.	
CQ3	I enjoy talking with people from different cultures.	
CQ4	I have the ability to accurately understand the feelings of people from other cultures.	
CQ5	I sometimes try to understand people from another culture by imagining how something looks from their perspective.	Cultural Skills
CQ6	I can change my behavior to suit different cultural situations and people.	
CQ7	I accept delays without becoming upset when in different cultural situations and with culturally different people.	
CQ8	I am aware of the cultural knowledge I use when interacting with someone from another culture.	
CQ9	I think a lot about the influence that culture has on my behavior and that of others who are culturally different.	Cultural Metacognition
CQ10	I am aware that I need to plan my course of action when in different cultural situations and with culturally different people.	
	Negotiation Self-efficacy Scale	
NEG1	I consider it easy to negotiate with a foreign counterpart.	
NEG2	I can respond to my counterpart easily during negotiations.	
NEG3	I consider that I have the ability to negotiate with a foreign counterpart.	Negotiation Self-efficacy
NEG4	I consider that I can negotiate with a foreign counterpart fluently.	
NEG5	Overall, I have confidence in negotiating with a foreign counterpart.	

Note: Items are listed in English as used in the original instruments. CQ refers to cultural intelligence, and NEG refers to negotiation self-efficacy. Dimensions for CQ are based on Thomas et al. (2015); NEG items were adapted from Lam et al. (2022).

NS was measured using a five-item scale originally developed by O'Connor and Arnold (2001) and adapted for cross-cultural business contexts by Lam and Liaw (2017). The scale assesses individuals' confidence in their ability to successfully prepare for and conduct negotiations, especially in culturally diverse settings. Self-efficacy has long been recognized as a key driver of negotiation performance, influencing persistence, communication effectiveness, and outcome satisfaction (Huber & Neale, 1987; Locke et al., 1984). The NS scale used in this study has demonstrated strong applicability for assessing performance-related confidence in intercultural negotiations, particularly among professionals in international business environments. To ensure linguistic and conceptual equivalence, both the German and Chinese versions of the NS scale were translated using the same multi-step procedure described for the CQ instrument, including forward–backward–forward translation and expert review by bilingual professionals. The five items used to measure negotiation self-efficacy are listed in Table 1.

In psychological and organizational research, reliability is a foundational criterion for evaluating the quality of measurement instruments. A scale cannot be considered valid unless it demonstrates acceptable reliability, as reliability reflects the degree to which an instrument consistently captures a latent construct such as competence, confidence, or cultural ability. Among the many indicators of internal consistency, Cronbach's alpha (α) remains the most widely reported. However, recent psychometric literature has emphasized the importance of alternative or complementary coefficients such as McDonald's omega (ω) and Guttman's lambda-2 (λ_2), which often provide more robust estimates under realistic measurement conditions (Cho & Kim, 2014; Zinbarg et al., 2005). These coefficients help address potential limitations of alpha, including its sensitivity to the number of items and assumptions of tau-equivalence and unidimensionality (Dunn et al., 2013; Sijtsma, 2009). To ensure accurate and transparent evaluation, this study reports all four indices of internal consistency: α, ω, λ_2, and the split-half reliability coefficient. Their combined interpretation provides a comprehensive picture of the psychometric adequacy of the Cultural Intelligence and Negotiation Self-Efficacy instruments.

The CQ scale demonstrated strong internal reliability ($\alpha = 0.823$; $\omega = 0.827$; $\lambda_2 = 0.827$; split-half = 0.785), supporting the consistency of its three-factor structure. The NS scale exhibited even higher reliability ($\alpha = 0.893$; $\omega = 0.896$; $\lambda_2 = 0.895$; split-half = 0.911), confirming excellent coherence across its five items. Full reliability statistics are provided in Table 2.

Tab. 2. Reliability estimates for the research instruments CQ and NS.

Instrument	Coefficient	Estimate	Std. Error	95% CI	
				Lower	Upper
CQ	Coefficient ω	0.827	0.013	0.801	0.853
	Coefficient α	0.823	0.016	0.791	0.855
	Guttman's $\lambda 2$	0.827	0.016	0.796	0.858
	Split-half coefficient	0.785	0.022	0.742	0.829
NS	Coefficient ω	0.827	0.013	0.801	0.853
	Coefficient α	0.823	0.016	0.791	0.855
	Guttman's $\lambda 2$	0.827	0.016	0.796	0.858
	Split-half coefficient	0.785	0.022	0.742	0.829

Note: α = Cronbach's alpha; ω = McDonald's omega; λ_2 = Guttman's lambda-2; CI = Confidence interval.

Model specification

In this study, the authors developed a theoretical and testable factor model to examine the relationship between CQ and NS, based on established measurement and structural criteria. The model includes both exogenous (CQ) and endogenous (NS) latent variables and is depicted in Figure 1, which illustrates the hypothesized second-order structure of CQ and its predictive relationship with NS.
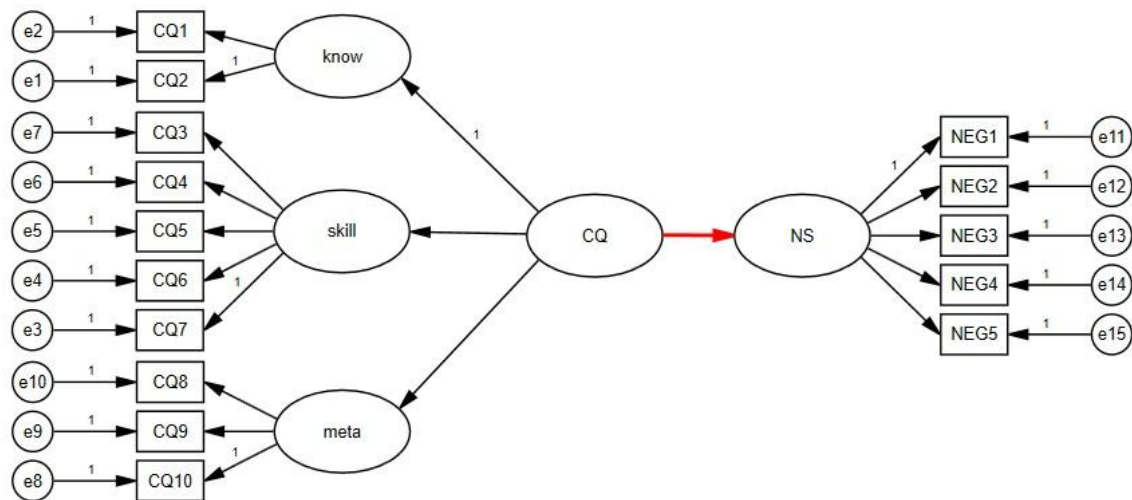

Fig. 1: Structural equation model specifying cultural intelligence CQ as a second-order factor with three subdimensions, cultural knowledge, cultural skills (skill), and cultural metacognition (meta), predicting negotiation self-efficacy (NS). Error terms (e1–e27) represent measurement error associated with the observed variables.

The hypothesized model was tested using SEM. As shown in Figure 1, CQ was modeled as a second-order latent construct, composed of three first-order subdimensions: cultural knowledge, cultural skills, and cultural metacognition. Each subdimension was measured by multiple observed indicators from the SFCQ scale. Specifically, cultural knowledge was measured with 2 items (CQ1–CQ2), cultural skills with 5 items (CQ3–CQ7), and cultural metacognition with 3 items (CQ8–CQ10).

NS was specified as a first-order latent variable, measured by five observed items (NEG1–NEG5). The structural component of the model posited a direct effect of CQ on NS, in line with theoretical assumptions that higher cultural intelligence enhances self-perceived negotiation competence in intercultural contexts.

All latent variables were specified to load onto their respective observed indicators, with error terms freely estimated. The model structure allowed for simultaneous testing of the measurement and structural components, while accounting for measurement error and the hierarchical nature of CQ.

Data analysis

The dataset obtained using the research instruments described above was analyzed using SEM in the software IBM SPSS AMOS. SEM was selected due to its robustness and suitability for testing complex theoretical models composed of latent variables and multiple indicators simultaneously (Wallenburg & Weber, 2005). The hypothesized model shown in Figure 1 included CQ as a second-order factor and NS as a first-order factor, with a structural path from CQ to NS. The sample size (N = 376) was adequate for SEM, meeting commonly cited recommendations for model estimation stability (Kline, 2023; Wolf et al., 2013)

SEM relies on several assumptions, including the assumption of continuous variables and multivariate normality. As noted by Rhemtulla et al. (2012) and Xia and Yang (2018), Likert-type data with five or more response categories, such as those used in this study, can be treated as approximately continuous, thus justifying the use of Maximum Likelihood (ML) estimation. ML was used to estimate the parameters for both the measurement and structural components of the model.

Model fit was evaluated using standard indices. In addition to overall model fit, the analysis included examination of standardized factor loadings, structural path coefficients, factor score weights, and the implied correlation matrix. These results are presented in the Results section.

Results

Fit and specification of the structural model

The hypothesized structural model, as specified in the methodology section, was estimated using SEM with ML estimation. Model fit was evaluated using a range of global fit indices: the chi-square to degrees of freedom ratio (χ^2/df), Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), Normed Fit Index (NFI), Goodness-of-Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI), Standardized Root Mean Square Residual (SRMR), and Incremental Fit Index (IFI). These indices were interpreted according to established cut-off thresholds for model adequacy (Hu & Bentler, 1998; Marsh et al., 1988).

All indices indicated excellent model fit across the full sample and subsamples. For the overall sample, the model achieved χ^2/df = 0.904, RMSEA = 0.000, and CFI = 1.000, with all other indicators exceeding the recommended thresholds. Complete fit statistics are reported in Tab. 3.

Tab. 3. Model fit Indices for the structural model.

Fit Indicies	Perfect Fit Indicies	Acceptable Fit Indicies	SEM Results Whole sample	SEM Results Germany	SEM Results China
χ2/df	$0 \leq \chi2/df \leq 2$	$2 \leq \chi2/df \leq 3$	0,904	1,101	0,867
GFI	$0.95 \leq GFI \leq 1.00$	$0.90 \leq GFI \leq 0.95$	0,977	0,954	0,944
AGFI	$0.90 \leq AGFI \leq 1.00$	$0.85 \leq AGFI \leq 0.90$	0,962	0,926	0,915
CFI	$0.95 \leq CFI \leq 1.00$	$0.90 \leq CFI \leq 0.95$	1,000	0,995	1,000
NFI	$0.95 \leq NFI \leq 1.00$	$0.90 \leq NFI \leq 0.95$	0,973	0,951	0,933
TLI	$0.97 \leq TLI \leq 1.00$	$0.95 \leq TLI \leq 0.97$	1,000	0,993	1,000
RFI	$RFI \geq 0.90^*$		0,961	0,931	0,911
IFI	$IFI \geq 0.90$		1,000	0,995	1,000
Hoelter 0.5	*Hoelter 0.5* ≥ 200	$75 \leq$ *Hoelter 0.5* < 200	534	260	223
RMSEA	$0.00 \leq RMSEA \leq 0.05$	$0.05 \leq RMSEA \leq 0.08$	0,000	0,021	0,000
SRMR	$0.00 \leq SRMR \leq 0.05$	$0.05 \leq SRMR \leq 0.10$	0,029	0,043	0,445
p	$p > 0.05$		0,707	0,257	0,795

Note: χ2 - Chi-square, df - Degrees of freedom, GFI - goodness of fit index, AGFI - adjusted goodness of fit index, CFI - comparative fit index, NFI - The Bentler-Bonett normed fit index, TLI - Tucker-Lewis coefficient, RFI – Bollen´s relative fit index (*the closer the value is to 1, the better the model fit is indicated.), IFI - Bollen´s incremental fit index, Hoelter 0.5 - Hoelter's Critical N, RMSEA - root mean square error of approximation, SRMR – standardized root mean square residual.

A closer look at the subsamples reveals that the model fits both the German and Chinese groups exceptionally well. The German model yielded strong fit indices (χ^2/df = 1.101, RMSEA = 0.021, CFI = 0.995), while the Chinese model achieved near-perfect values (χ^2/df = 0.867, RMSEA = 0.000, CFI = 1.000). Although both subsamples met all key thresholds, the Chinese group showed slightly stronger fit, particularly regarding RMSEA and the non-significant chi-square test ($p = 0.795$). Hoelter's critical N indicated stable sample adequacy for both groups (Germany = 260; China = 223). Overall, these findings affirm that the structural relationship between CQ and NS is robust across cultural contexts, supporting the generalizability of the model.

Structural path analysis

The SEM model for the full sample revealed a statistically significant, moderately strong positive effect of CQ on NS (β = 0.630, p < .001), supporting H1. This indicates that individuals with higher CQ report greater negotiation self-efficacy in intercultural business contexts. Full standardized and unstandardized estimates for the overall and country-specific models are shown in Table 4.

Each of the three subdimensions loaded significantly onto the second-order CQ construct:

- Cultural skills: β = 0.940
- Cultural Metacognition: β = 0.910
- Cultural knowledge: β = 0.692

These results support H2, H3, and H4, confirming that all three subdimensions meaningfully contribute to the overall CQ construct.

To assess measurement quality, standardized loadings of the observed indicators were examined. All items loaded significantly (p < .001), with loadings ranging from 0.555 to 0.922, confirming the reliability of both CQ and NS scales.

- Within cultural knowledge, CQ2 (β = 0.922) showed the strongest loading, while CQ1 (β = 0.644) was moderate.
- For Cultural skills, CQ4 (β = 0.912), CQ5 (β = 0.880), and CQ3 (β = 0.860) were strongest, with CQ6 and CQ7 also contributing (β = 0.779, 0.555).
- For Metacognitive, CQ8 (β = 0.920), CQ9 (β = 0.856), and CQ10 (β = 0.670) were strong indicators.

The latent NS factor was also well-supported by all five items: NEG5 (β = 0.884) and NEG3 (β = 0.864) were the most influential, followed by NEG4 (β = 0.825), NEG2 (β = 0.704), and NEG1 (β = 0.628).

Tab. 4. Structural equation model path estimates: full and country sample.

Relationship			Whole Sample			Germany			China		
			Est.	Std.Est	p-val	Est.	Std.Est	p-val	Est.	Std.Est	p-val
NS	<-	CQ	0,948	0,630	0,000	1,242	0,733	0,000	0,453	0,469	0,000
skill	<-	CQ	0,699	0,940	0,000	0,533	0,920	0,000	0,908	0,911	0,000
know	<-	CQ	1,000	0,692	0,000	1,000	0,769	0,000	1,000	0,780	0,000
meta	<-	CQ	0,832	0,910	0,000	0,767	0,652	0,000	1,061	0,921	0,000
CQ2	<-	know	1,000	0,922	0,000	1,000	0,723	0,000	1,000	0,857	0,000
CQ1	<-	know	0,863	0,644	0,000	0,965	0,561	0,000	1,122	0,710	0,000
CQ7	<-	skill	1,000	0,555	0,000	1,000	0,293	0,000	1,000	0,450	0,000
CQ6	<-	skill	1,338	0,779	0,000	1,523	0,615	0,000	1,218	0,584	0,000
CQ5	<-	skill	1,755	0,880	0,000	2,102	0,644	0,000	1,070	0,625	0,000
CQ4	<-	skill	1,946	0,912	0,000	2,413	0,742	0,000	1,492	0,708	0,000
CQ3	<-	skill	1,552	0,860	0,000	1,957	0,669	0,000	1,371	0,794	0,000
CQ10	<-	meta	1,000	0,670	0,000	1,000	0,635	0,000	1,000	0,572	0,000
CQ9	<-	meta	1,600	0,856	0,000	1,554	0,864	0,000	1,306	0,711	0,000
CQ8	<-	meta	1,344	0,920	0,000	0,785	0,561	0,000	1,120	0,756	0,000
NEG1	<-	NS	1,000	0,628	0,000	1,000	0,846	0,000	1,000	0,384	0,000
NEG2	<-	NS	0,939	0,704	0,000	0,923	0,862	0,000	1,465	0,644	0,000
NEG3	<-	NS	1,250	0,864	0,000	1,052	0,877	0,000	2,156	0,909	0,000
NEG4	<-	NS	1,369	0,825	0,000	1,104	0,789	0,000	2,257	0,864	0,000
NEG5	<-	NS	1,361	0,884	0,000	1,154	0,885	0,000	2,069	0,833	0,000

Note: Est. = unstandardized estimate; Std.Est = standardized estimate; *p*-val = *p*-value. CQ = cultural intelligence; NS = negotiation self-efficacy; know = cultural knowledge; skill = cultural skills; meta = cultural metacognition. All *p*-values are < .001 and indicate statistically significant paths.

Cross-cultural country comparison

The structural relationship between CQ and NS was significant in both cultural subsamples, but differed in strength, with Germany showing a stronger effect (β = 0.733, p < .001) than China (β = 0.469, p < .001). These findings support H1a and H1b, which proposed that CQ positively and significantly predicts NS among German

and Chinese professionals, respectively. The difference in effect size also supports H5, which predicted that the strength of the CQ–NS relationship would vary by culture.

Among German respondents, cultural skills showed the strongest contribution to the CQ construct ($\beta = 0.920$), followed by cultural knowledge ($\beta = 0.769$) and cultural metacognition ($\beta = 0.652$). The highest-loading indicators were CQ4 and CQ5 (cultural skills) and CQ2 (cultural knowledge). Within the NS construct, NEG5 had the highest standardized loading ($\beta = 0.885$), followed by NEG3 ($\beta = 0.877$).

In contrast, among Chinese respondents, cultural metacognition was the strongest CQ subdimension ($\beta = 0.921$), followed closely by cultural skills ($\beta = 0.911$), while cultural knowledge contributed slightly less ($\beta = 0.780$). The top observed indicators were CQ8, CQ9 (metacognitive), and CQ2 (cultural knowledge). Within NS, the highest-loading item was NEG3 ($\beta = 0.909$), followed by NEG4 ($\beta = 0.864$) and NEG5 ($\beta = 0.833$).

Implied correlation matrices

To further examine the internal structure of the model and the consistency of relationships among constructs, implied correlation matrices were analyzed for the overall sample as well as for the German and Chinese subsamples. These matrices reflect the model-implied relationships between latent variables and their respective indicators and help validate the quality and structure of the measurement and structural model beyond fit indices and path coefficients. The complete implied correlation matrices for the overall sample and the German and Chinese subsamples are provided in the online supplementary material (due to size constraints, the complete data table is available from the corresponding author upon request).

In the overall sample, CQ and NS showed a moderate implied correlation ($r = 0.630$), consistent with the structural path estimate. Within the CQ construct, cultural skills and metacognitive dimensions were highly correlated ($r = 0.804$), and both were also strongly associated with cultural knowledge ($r = 0.630$ and 0.650). Among the 45 inter-item correlations within the CQ construct, the strongest were observed between CQ9 and CQ10 ($r = 0.539$), CQ2 and CQ4 ($r = 0.495$), and CQ4 and CQ5 ($r = 0.490$). Notably, these items stem from different CQ subdimensions (e.g., cultural metacognition, cultural knowledge, and cultural skills), further supporting the coherence of the second-order CQ construct. On the NS side, inter-item correlations were high, especially between NEG3, NEG4, and NEG5 ($r > 0.70$), indicating robust coherence within the construct.

The German subsample showed a stronger implied correlation between CQ and NS ($r = 0.733$). Internal correlations among CQ subdimensions were also high, with the strongest link between cultural skills and cultural knowledge ($r = 0.708$). The strongest inter-item correlations among CQ indicators were found between CQ9 and CQ10 ($r = 0.549$), CQ3 and CQ4 ($r = 0.497$), and CQ8 and CQ9 ($r = 0.485$). These items represent primarily cultural skills and cultural metacognition, confirming strong internal consistency within these subdimensions. Additionally, items representing cultural knowledge also showed substantial correlations, further supporting the structural coherence of the overall CQ construct. Within NS, NEG5 and NEG3 again emerged as highly intercorrelated ($r = 0.776$) and also showed strong associations with CQ and its subcomponents.

In the Chinese subsample, the implied correlation between CQ and NS was lower but still substantial ($r = 0.469$). The strongest internal association among CQ subdimensions was between metacognitive CQ and cultural skills ($r = 0.839$), supporting their central role in this group's CQ structure. The strongest inter-item correlation was observed between CQ1 and CQ2 ($r = 0.609$), both of which represent cultural knowledge. High correlations were also observed between CQ8 and CQ9 ($r = 0.538$), both from metacognitive CQ, and between CQ3 and CQ8 ($r = 0.504$), spanning the cultural skills and metacognitive subdimensions. These associations highlight internal consistency across and within CQ dimensions in the Chinese group. On the NS side, NEG3 and NEG4 showed particularly strong intercorrelation ($r = 0.786$) and positive links to the overall CQ construct.

Factor score weights

Factor score weights reflect the contribution of each observed item to its associated latent construct. In this study, they were used to compute factor scores for the second-order construct of CQ, its three subdimensions, and the NS factor. As Brown (2015) notes, these estimates are weighted composites of observed variables based on model parameters. According to Kline (2023), the weights indicate how strongly each item contributes to the latent variable. Due to size constraints, the complete data table for the full sample and both subsamples (China and Germany) is available from the corresponding author upon request.

Factor score weights confirmed appropriate contributions of observed indicators to their respective latent constructs. For NS, the highest weight was observed for NEG5 (0.24). Within CQ, the strongest contribution to metacognitive CQ came from CQ8 (0.16). For cultural knowledge, the most influential indicators were CQ2 (0.49) and CQ3 (0.15). No substantial cross-loadings were detected, supporting the measurement model's structure.

In the German sample, CQ2 (cultural knowledge) had the highest factor loading (0.33), making it the most influential item within the cultural knowledge subdimension. However, the highest overall weight across all indicators was observed for CQ9 (cultural metacognition, 0.39), highlighting the centrality of metacognitive aspects in estimating CQ among German respondents. Other relevant contributors included CQ4 (cultural skills, 0.10) and CQ1 (cultural knowledge, 0.39), though their weights were slightly lower. For the NS factor, NEG2

(0.30) and NEG5 (0.27) showed the highest weights, followed by NEG3 (0.14). In contrast, NEG1 (0.11) and NEG4 (0.07) had comparatively modest influence, indicating a relatively narrow concentration of item impact within the German sample.

In the Chinese sample, CQ2 (cultural knowledge) had the highest factor loading (0.51), making it the most influential observed indicator within the knowledge subdimension and a central driver of the overall CQ construct. Additional substantial contributions came from CQ8 (cultural metacognition, 0.20), CQ3 (cultural skills, 0.22), and CQ1 (cultural knowledge, 0.15), indicating a more even distribution of influence across the three CQ subdimensions. This pattern suggests that among Chinese respondents, CQ is shaped by a broader combination of knowledge, cognitive monitoring, and behavioral adaptability. For the NS factor, the most influential items were NEG3 (0.19) and NEG4 (0.11), while NEG2 (0.04) and NEG1 (0.00) had negligible weights.

Cross-sample comparison reveals several notable differences in the pattern of factor score weights. In Germany, metacognitive processes played a more central role in CQ estimation, with CQ9 (0.39) emerging as the strongest contributor, followed by CQ2 (0.33). In contrast, Chinese respondents showed a stronger emphasis on explicit cultural knowledge, with CQ2 (0.51) dominating across all indicators. Moreover, CQ3 (cultural skills, 0.22) was more influential in China than in Germany (0.10), indicating a relatively greater behavioral orientation in the Chinese sample. While both groups considered CQ1 relevant, its influence was higher in Germany (0.39) than in China (0.15).

In terms of Negotiation Self-Efficacy, German participants showed the highest weights for NEG2 (0.30) and NEG5 (0.27), whereas in China, NEG3 (0.19) and NEG4 (0.11) were most influential. This indicates that different NS items contributed most strongly to the factor across the two cultural groups.

These contrasts highlight cultural variation in how CQ and NS are structured at the item level, offering deeper insight into the psychological constructs' functioning across national contexts.

Discussion

This study examined the relationship between CQ and NS among German and Chinese business professionals engaged in intercultural contexts. SEM revealed that CQ significantly and positively predicts NS across the entire sample ($\beta = 0.630$), supporting the main hypothesis (H1). This positive effect was also found within each cultural group: among German participants (H1a), CQ significantly predicted NS with a stronger path coefficient ($\beta = 0.733$), while among Chinese participants (H1b), the effect was likewise significant, though weaker ($\beta = 0.469$), supporting the moderation hypothesis (H5). All three CQ subdimensions - cultural metacognition, cultural skills, and cultural knowledge - contributed significantly to the latent CQ factor (H2–H4), though their relative importance differed across groups.

Our findings align with prior studies that emphasize CQ as a core enabler of intercultural negotiation success (Groves et al., 2015; Imai & Gelfand, 2010; Varela & Köhler, 2018). High-CQ individuals possess a greater awareness of cultural dynamics (metacognitive CQ), a deeper understanding of cultural norms and conventions (cultural knowledge), and the interpersonal competencies needed to engage appropriately in intercultural interactions (cultural skills). These three components jointly enhance individuals' belief in their ability to manage intercultural negotiations effectively, an essential aspect of NS. As Bandura (1997) theorized, self-efficacy arises not only from possessing skills but also from confidence in navigating complex and uncertain environments. In this sense, CQ functions as a psychological resource that supports negotiators' confidence when dealing with culturally diverse counterparts and negotiation settings.

The differing strength of the CQ-NS effect between German and Chinese participants supports our moderation hypothesis (H5) and points to cultural differences in how negotiation competence and confidence are construed. The stronger CQ on NS effect among German participants reflects cultural differences in how negotiation competence and confidence are construed. In low-context, individualistic cultures like Germany, NS may be tied more closely to personal agency, communication precision, and assertive behavior (Gelfand & Dyer, 2000; Hofstede, 2001). Consequently, CQ, especially its cultural knowledge and social skills, may directly empower German professionals to feel in control and effective during negotiations, as supported by Groves et al. (2015) and Lügger et al. (2015), who found that Germans favor structured, fairness-driven negotiation approaches.

Conversely, Chinese professionals, operating within high-context and collectivist norms, may interpret negotiation success through relational harmony and group alignment rather than individual assertiveness (Hennig-Schmidt & Walkowitz, 2015; Tung et al., 2008). As such, NS may be less directly influenced by CQ alone and more affected by broader relational and contextual variables. This dynamic is also consistent with Ting-Toomey's (1988) Face Negotiation Theory, which posits that individuals from collectivist, high-context cultures such as China prioritize face-saving and relational harmony in conflict interactions. In such settings, the expression of NS may be shaped more by implicit social norms and indirect communication than by individually held competencies like CQ.

Similarly, Hall's (1976) high-context cultural framework suggests that Chinese negotiators rely on context, shared history, and nonverbal cues to navigate negotiations, making explicit self-efficacy judgments less central

than in low-context cultures like Germany. The relatively lower CQ–NS effect among Chinese participants may reflect a more holistic conception of negotiation competence, one that CQ, as measured here, may only partially capture.

This interpretation is also consistent with Hennig-Schmidt et al. (2024) and Lügger et al. (2015), who observed that Chinese negotiators were more consistent in their distributive strategies across intra- and intercultural settings, whereas Germans adapted their behavior to context. Adaptation was also found to be asymmetrical: German negotiators increased their distributive behavior in intercultural settings, whereas Chinese negotiators did not significantly change their approach, possibly due to differences in motivational flexibility and expectations regarding harmony and face.

A closer look at the subdimensions of CQ further clarifies these cultural differences. Among Chinese participants, cultural metacognition emerged as the most influential subdimension. This finding aligns with Varela (2018) and Chua et al. (2012), who emphasize that reflective cultural thinking, such as monitoring and adjusting one's understanding during intercultural interactions, is especially critical in high-context, relationship-oriented settings. Cultural metacognition equips negotiators to manage face-sensitive situations and decode implicit communication patterns, both of which are fundamental in collectivist cultures like China. Our results confirm this dynamic, reinforcing the idea that reflective awareness plays a central role in building NS in such environments.

In contrast, German participants showed higher reliance on cultural skills CQ, suggesting that adaptive interpersonal behavior is more central to their negotiation confidence. This aligns with findings by Helmold et al. (2022) and Lügger et al. (2015), who describe German negotiation culture as valuing structure, verbal clarity, and fairness. Similarly, Groves et al. (2015) highlight that cognitive understanding and social competence are essential for successful intercultural negotiation, particularly in low-context, individualistic cultures where explicit behavior matters more than relational nuance. These patterns were mirrored in our data: cultural skills CQ was the strongest subdimension among Germans, while metacognitive CQ played a larger role among Chinese professionals.

Taken together, these results suggest that different CQ components contribute to NS in culturally specific ways. Moreover, item-level patterns in NS further support this view. Germans scored higher on items linked to control and direction, whereas Chinese participants showed stronger alignment with items reflecting calmness and relational awareness. These differences underscore the importance of interpreting self-efficacy through a culturally sensitive lens and confirm that CQ sub-dimensions operate differently across cultural contexts. Similar to our findings, Zuo et al. (2024) found that transformational leadership fosters innovativeness and self-renewal, but its impact varies across contexts. This reinforces the idea that constructs like CQ and leadership influence outcomes such as NS through culturally specific pathways. Similar to adaptive entrepreneurial behavior under uncertainty, culturally intelligent negotiators adjust their strategies by interpreting complex intercultural cues (Wang et al., 2025).

These cultural asymmetries may also reflect deeper psychological mechanisms shaping negotiation behavior. As Lakshman et al. (2021) show, perceptions of overconfidence in cross-cultural negotiation can influence strategy: Western negotiators who saw Asian counterparts as overconfident tended to pursue win–lose outcomes, while others favored win–win approaches. Although our study did not directly assess overconfidence, the cultural asymmetry in the CQ-to-NS link may reflect deeper psychological dynamics, such as confidence signaling, face management, and relational calibration, consistent with Gelfand and Dyer's (2000) model of negotiation and culture.

Theoretical and practical implications

This study contributes theoretically by empirically validating CQ's predictive power for NS, thereby bridging two streams of research that are rarely integrated: intercultural competence (Ang et al., 2007) and negotiation psychology (Richards et al., 2020; Thompson, 2015). By confirming that CQ's influence on NS is culturally contingent, it adds nuance to models of international negotiation, such as Gelfand and Dyer's (2000) dynamic constructivist perspective, which emphasizes context-driven schema activation in culturally diverse settings.

Practically, the findings underscore the need for culturally sensitive CQ training. Organizations should not only train for cultural knowledge but also foster metacognitive reflection and interpersonal competence in intercultural settings. CQ development should also be tailored: Germans may benefit more from skills-based cultural training (e.g., communication, rapport-building), whereas Chinese professionals may benefit from strengthening metacognitive strategies that facilitate situational awareness and flexibility. Lastly, NS assessment tools may need to be adapted cross-culturally, as conceptions of confidence and negotiation success vary. These findings are particularly important for industries embedded in global resource networks, including mining and commodity supply chains, where culturally intelligent negotiation supports long-term contracts, environmental agreements, and responsible resource partnerships.

Limitations and future research

This study has several limitations that also point toward valuable directions for future research. First, the cross-sectional design limits causal inference; longitudinal approaches would better capture how CQ develops over time and influences NS. Second, while Germany and China offer contrasting cultural profiles that help illuminate cultural effects, the findings may not generalize to other national or regional contexts. Third, the NS construct was assessed via self-reports, which may be subject to cultural response biases such as self-enhancement or modesty. Future research should therefore consider complementing self-assessments with behavioral data or peer evaluations.

Additionally, only three subdimensions of CQ, cultural metacognition, cultural knowledge, and Cultural Skills, were included to ensure model parsimony. Although theoretically sound, this choice omits Motivational and Behavioral CQ, which may offer further explanatory power. Future studies should explore how all four CQ dimensions interact to shape negotiation confidence, particularly in culturally complex or hybrid settings.

Researchers are also encouraged to examine how intercultural sensitivity and conflict management styles interact with CQ to influence negotiation outcomes. Beyond cultural context, individual personality traits may also influence negotiation-related confidence. Future studies could examine how traits such as openness or emotional stability interact with CQ to shape negotiation self-efficacy (Basana et al., 2024). Future studies could test additional mediators and moderators, such as learning orientation or organizational culture, which have been shown to shape the impact of leadership on performance (Shahzad et al., 2024). Moreover, developing culturally adapted NS measures may provide more accurate insights into how different cultures define and express NS. Lastly, future studies should move beyond self-perceptions to include observed negotiation behavior, allowing for a more comprehensive understanding of how CQ manifests in real negotiation settings.

Future research should examine how intercultural sensitivity and conflict styles interact with CQ in shaping negotiation outcomes. Personality traits such as openness and emotional stability may also influence negotiation self-efficacy (Basana et al., 2024). Additionally, mediators and moderators, such as learning orientation and organizational culture, warrant investigation given their impact on the leadership–performance link (Shahzad et al., 2024). Culturally adapted NS measures and behavioral assessments could further enrich understanding of how CQ operates across contexts.

Additionally, emerging research suggests promising directions for integrating CQ into digital and technology-mediated negotiation settings. Hammami (2025) demonstrates that in e-business environments, CQ enhances trust-building and negotiation outcomes. Liu et al. (2025) go further by introducing CQ-Bench, a framework assessing metacognitive CQ in AI systems. These developments open new avenues for using CQ in virtual negotiations, AI-assisted negotiation training, and digital cross-cultural simulations. Future research could explore how human–machine interactions or automated agents equipped with CQ influence negotiation dynamics.

Conclusions

This study demonstrates that CQ significantly enhances NS among professionals operating in intercultural business contexts. By modeling CQ as a second-order construct and testing its predictive power using SEM, the research provides empirical support for CQ's relevance in global negotiation settings. The results reveal both universal patterns—CQ consistently predicts NS—and culturally specific dynamics, with metacognitive CQ most influential among Chinese professionals and cultural skills more central for Germans. These findings highlight that CQ is not a one-size-fits-all resource; its impact on negotiation confidence depends on underlying cultural logics and communication norms. As global industries, including strategic and resource-intensive sectors such as mining, increasingly rely on cross-border collaboration, developing culturally adaptive negotiation capabilities remains essential for sustainable success. This work thus offers a useful framework for research, policy, and professional training to strengthen negotiation effectiveness in complex international environments.

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