



## Cultural intelligence, perceived inclusion, and cultural diversity in workgroups



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### ABSTRACT

The positive effects of cultural intelligence (CQ) and perceived inclusion in culturally diverse contexts are well-documented, but the relationship between these constructs has not been explored despite them sharing common themes. We examine the relationships between individual-level CQ, perceived inclusion, and perceived cultural diversity in a sample of 925 individuals working in culturally diverse groups. Our results showed that individuals' CQ predicts their perceived inclusion in workgroups. Moreover, individuals' perceived inclusion in workgroups is related to further CQ development in these individuals, and this relationship is stronger when individuals perceive greater cultural diversity in their workgroups. These findings extend research on factors contributing to individual differences in CQ and perceived inclusion in workgroups. We discuss implications for enhancing perceived inclusion and CQ in culturally diverse workgroups.

### 1. Introduction

Individual differences in adaptation and effectiveness in cross-cultural contexts have gained increasing attention among scholars and practitioners as workplaces globalize and become more culturally diverse (Alexandra, 2018a, 2018b; Bernardo & Presbitero, 2017; Li, 2020). Cultural intelligence (CQ), which refers to the capability to adapt and function successfully in culturally diverse environments (Earley & Ang, 2003), has been linked to positive individual-level outcomes in culturally diverse contexts, including performance (Lisak & Erez, 2015), interaction quality (Charas, 2015), interpersonal trust, work engagement, and innovation (Afsar et al., 2020). Motivated by the benefits of CQ, scholars have investigated factors that relate to individual differences in CQ, yet there is still much to learn (Fang et al., 2018). We contribute to this emerging research by examining the relationships between CQ, perceived inclusion, and perceived cultural diversity in workgroups.

Inclusion shares with CQ the goal of improving positive outcomes in culturally diverse work contexts (Shore et al., 2018). Inclusion occurs when individuals perceive that they belong in a workgroup and feel valued and appreciated for their unique characteristics and input; inclusion often accompanies individuals' sense that they have influence in decisions and access to information (Mor Barak, 2016; Shore et al., 2011). Relatedly, CQ involves individuals' capability to identify, value,

and appreciate cultural differences (Earley & Ang, 2003). Despite the common themes between perceived inclusion and CQ, our understanding of the relationships between them has been limited (Bennett, 2014).

In this study, we provide evidence that individuals' CQ predicts their perceived inclusion in their workgroup. Moreover, individuals' perceived inclusion is associated with further development of CQ, especially for individuals who perceive greater cultural diversity in their workgroup. By looking beyond commonly suggested antecedents of CQ such as international travel and work experience (Fang et al., 2018), our results advance our understanding of the nomological network of CQ and uncover benefits of perceived inclusion in enhancing individuals' CQ. Furthermore, our study highlights how the benefits of perceived inclusion for CQ development can be realized to a greater extent when individuals perceive high levels of cultural diversity in workgroups. Additionally, our results expand research on individual differences in inclusion by establishing CQ as an antecedent to perceptions of inclusion. Overall, this study increases knowledge about how to improve the effectiveness of culturally diverse workgroups, which can lead to even wider-reaching benefits when scaled up to the organizational level (Grapin & Pereiras, 2019).

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### 1.1. CQ and perceived inclusion

Despite their impact on organizational research and practice, CQ and perceived inclusion are conceptualized in ways that are still evolving (Fang et al., 2018; Liao & Thomas, 2020; Shore et al., 2011, 2018). In the present study, we use the most popular conceptualization of CQ as a multidimensional construct consisting of metacognitive, cognitive, motivational, and behavioral facets (Ang et al., 2007; Earley & Ang, 2003). These facets entail awareness and understanding of cultural diversity (metacognitive), cultural knowledge (cognitive), drive and efficacy to engage with cultural diversity (motivational), and an ability to display appropriate behaviors in culturally diverse contexts (behavioral).

Perceived inclusion refers to an individual's perceptions of belonging and being valued for what makes them unique and different within a group (Shore et al., 2011). Perceived inclusion is realized when individuals experience decision-making influence and having a voice (Mor Barak, 2016), appreciation for their true self (Nishii, 2013), and acceptance and fit in a group (Downey et al., 2015).

We argue that CQ predicts individuals' perceived inclusion since CQ involves capabilities for appreciating and leveraging cultural differences in ways that contribute to perceived inclusion. High CQ individuals are skilled at adjusting their mental schemas and habits to show awareness and understanding of cultural differences (Earley & Ang, 2003). They are especially tolerant of cultural differences and unlikely to make inaccurate and superficial judgments in cross-cultural interactions (Afsar et al., 2020). High CQ individuals are also capable of balancing and integrating diverse team members' knowledge and perspectives (Ratasuk & Charoensukmongkol, 2020). Consequently, high CQ individuals are better enabled to gain relationship-based acceptance from their teammates (Joardar et al., 2007). The tendencies of high CQ individuals to minimize outgroup distinctions and foster a sense of familiarity and acceptance in relationships (Afsar et al., 2020) are likely to contribute to these individuals' sense of belongingness, which is an important aspect of one's perceived inclusion in a workgroup (Shore et al., 2011).

Further, high CQ individuals' awareness and understanding of cultural diversity allow them to see and appreciate others' – and their own – unique characteristics (Earley & Ang, 2003). High CQ individuals avoid stereotypes and social categorization based on superficial cultural characteristics in cross-cultural interactions (Ratasuk & Charoensukmongkol, 2020). Appreciation of unique characteristics and avoidance of stereotypes should promote individuals' perceptions of value for being unique within a group, which is another part of perceived inclusion (Shore et al., 2011).

Additionally, high CQ individuals have been shown to engage in decision making and voice behaviors such as proposing constructive ideas and persuading people to accept them (Jiang et al., 2018). This suggests that high CQ individuals will engage in behaviors that will contribute to perceived inclusion.

**Hypothesis 1.** An individual's CQ is positively related to that individual's perceived inclusion in their workgroup.

### 1.2. Perceived inclusion and CQ development

We posit that individuals who perceive inclusion are likely to be able to realize further CQ gains because they are open to engaging with culturally diverse workgroup members, learning about differences, and finding value in different perspectives. Perceived inclusion involves knowledge sharing and participation in decision-making (Mor Barak, 2016) and it has been linked to engagement in learning behaviors such as dialogue and collaboration (Zhu et al., 2019). Knowledge sharing and dialogue provide opportunities for CQ development by allowing individuals to acquire and reflect on culturally diverse knowledge (enhancing cognitive and metacognitive CQ). Collaboration and

participation in decision-making allow individuals to practice newly acquired knowledge (enhancing behavioral CQ). Dialogue and collaboration in culturally diverse contexts drive individuals to learn about and find value in cultural differences (enhancing motivational CQ).

Furthermore, perceived inclusion implies allowing for individual differences to be acknowledged while simultaneously working toward a common purpose (Ferdman & Davidson, 2004). It fosters the perception of social equality across multiple dimensions of individual identity (Ferdman, 2017). Relatedly, Rosenblatt et al. (2013) showed that individuals who perceive meaningful interactions, a common purpose, and social equality in cross-cultural encounters are more likely to develop CQ.

**Hypothesis 2.** An individual's perceived inclusion is positively related to that individual's CQ development.

### 1.3. The moderating role of perceived cultural diversity

We expect that perceived cultural diversity moderates the relationship between an individual's CQ and perceived inclusion. Research has suggested that the positive outcomes of CQ tend to be stronger for individuals in diverse workgroups. For example, Groves and Feyerherm (2011) found that high CQ leaders facilitated individual perceptions of workgroup performance more effectively when working in culturally diverse workgroups compared to culturally homogeneous workgroups. Likewise, we expect that high CQ individuals are more likely to perceive inclusion in culturally diverse workgroups. For high CQ individuals, perceiving that a workgroup is culturally diverse is a signal that their CQ may be a valuable asset and an avenue to fit with the group. Being in a culturally diverse workgroup may also cue aspects of CQ that contribute to perceived inclusion, such as fostering familiarity with other cultures, reducing social categorization and outgroup distinctions, and supporting collaboration, knowledge sharing, and learning about their own and other members' unique characteristics (Ratasuk & Charoensukmongkol, 2020).

**Hypothesis 3a.** The relationship between an individual's CQ and perceived inclusion is stronger for individuals who perceive higher levels of cultural diversity in their workgroup.

We also expect that when an individual perceives high levels of both inclusion and cultural diversity within his or her workgroup, that individual can learn from different cultures, thereby allowing CQ to develop further. In more inclusive culturally diverse groups, an individual has greater access to new and diverse information and perspectives (Li et al., 2017). Individual-level perceptions of inclusion are positively associated with a trusting atmosphere (Downey et al., 2015), which has been linked to CQ development (Erez et al., 2013). When individuals perceive inclusion and trust in workgroups that they perceive to be culturally diverse, they are more likely to inquire about and learn from other members' cultural differences, which contributes to CQ development.

**Hypothesis 3b.** The relationship between an individual's perceived inclusion and CQ development is stronger for individuals who perceive higher levels of cultural diversity in their workgroup.

## 2. Method

### 2.1. Participants and procedures

The sample consisted of 925 individuals enrolled in an undergraduate international business course who were randomly assigned to workgroups of five to eight students. Participants were on average 22.43 years old, 49% were female, 39% were Caucasian American, and 92% had work experience (on average 4.61 years). Participants completed online surveys at the beginning (Time 1, hereafter T1) and end

(Time 2, hereafter T2) of the semester as part of course requirements. The study was conducted in line with ethical principles and guidelines such as informed consent and confidentiality of data.

## 2.2. Measures

All measures were assessed at the individual level of analysis.

1. *CQ and CQ Development*: CQ was measured at T1 (Cronbach's alpha = 0.90) and T2 (Cronbach's alpha = 0.93) using a previously validated twenty-item scale consisting of four dimensions: metacognitive, cognitive, motivational, and behavioral (Ang et al., 2007). To assess CQ development, we used the latent change score (LCS) modeling procedure (McArdle, 2009). LCS adds a set of unity constraints upon the observed scores of the latent CQ variables at T1 and T2, which yields more accurate estimates of mean differences by correcting for random measurement and systematic errors and establishing measurement invariance for repeated CQ measures. LCS also allowed us to include both T1 and T2 CQ scores in the analyses and enabled us to study the dynamic reciprocal relationships related to change in CQ over time (Li et al., 2014).
2. *Perceived Inclusion* was measured at T2 (Cronbach's alpha = 0.82) using six items adapted from Mor Barak (2016) to be applicable to a classroom-based environment.
3. *Perceived Cultural Diversity* was measured at T2 by asking respondents whether the ethnicity/race composition in their workgroup was 1) either not at all or a bit diverse,<sup>1</sup> 2) somewhat diverse, or 3) extremely diverse.
4. *Control variables* included gender (1 = female; 0 = male), cultural majority (1 = Caucasian, 0 = other ethnicities/races), international experience (a single item indicating frequency of travel to a foreign country), and social desirability response bias (a 10-item impression management scale by Steenkamp et al., 2010; Cronbach's alpha = 0.73).

## 3. Results

Table 1 shows means, standard deviations, and zero-order correlations for the study variables. A *t*-test indicated significant CQ development among participants between T1 and T2 ( $CQ_{T1} = 3.51$ ,  $CQ_{T2} = 3.76$ ,  $\Delta CQ = 0.25$ ,  $t = 15.36$ ,  $p < 0.0001$ ).

We tested the hypothesized relationships with structural equation modeling (SEM) based on the analyses of covariance structures, using a confirmatory approach with maximum likelihood estimation in SPSS AMOS 25. Following the two-step approach to SEM (Anderson & Gerbing, 1988), we examined the fit of the measurement model to the data to validate the scales prior to examining the fit of the structural model depicting our hypotheses. Both models included four latent variables (CQ at T1, social desirability at T1, perceived inclusion at T2, and CQ at T2) and three single indicators (gender, cultural majority, and international experience). The latent CQ variables consisted of four indicators created by averaging the items measuring each CQ dimension (metacognitive, cognitive, motivational, and behavioral). The measurement model (CFI = 0.910, RMSEA = 0.06) and the structural model (CFI = 0.944, RMSEA = 0.047) provided good fit to the data.

Next, we tested Hypotheses 1 and 2 (direct effects) using structural path analyses. Initial CQ was positively related to perceived inclusion (direct effect = 0.40,  $p < 0.001$ , Hypothesis 1 supported). Perceived inclusion was positively related to CQ development (direct

effect = 0.26,  $p < 0.001$ , Hypothesis 2 supported). Among the control variables, being female was positively related to perceived inclusion (direct effect = 0.08,  $p < 0.05$ ), while social desirability was positively related to perceived inclusion (direct effect = 0.14,  $p < 0.05$ ) and CQ development (direct effect = 0.12,  $p < 0.01$ ).

Hypotheses 3a and 3b (moderation effects) were tested using multi-group SEM that involved splitting the sample into three levels—low ( $n = 232$ ), moderate ( $n = 455$ ), and high ( $n = 238$ ) perceived cultural diversity—and testing structural path inequality across these levels. The presence of significant inequality in structural paths would signify that the relationships among the latent variables are different across levels and the presence of moderation.

Prior to testing structural path inequality, we established cross-level conceptual and metric invariance of the structural model to ensure the equivalency of the variables' conceptualizations and scales across the three levels. The conceptual invariance of the model was established as the unconstrained model showed a good fit to the data across the three levels (CFI = 0.931, RMSEA = 0.030). To examine the metric invariance of the model, we placed equality constraints on the factor loadings across the three levels. The constrained model demonstrated a good fit (CFI = 0.928, RMSEA = 0.030); however, there was a significant difference in chi-square values between the constrained and the unconstrained models ( $\Delta\chi^2 = 27.300$ ,  $\Delta df = 14$ ,  $p < 0.05$ ). Using the critical ratio difference method in AMOS (Byrne, 2001), we determined that one perceived inclusion item and one social desirability item were responsible for this significant difference in chi-square values. Based on the recommendation that at least partial metric invariance (with a majority of factor loadings remaining equivalent) should be established prior to testing the inequality of the structural paths (Vandenberg & Lance, 2000), we relaxed the equality constraints on the two factor loadings. The partially constrained model showed a good fit (CFI = 0.930, RMSEA = 0.030) and there were no significant differences in chi-square values ( $\Delta\chi^2 = 14.43$ ,  $\Delta df = 12$ , *n.s.*). Thus, we could move to testing the inequality of the structural paths.

We tested the inequality of structural paths by imposing cross-group equality constraints on the structural paths between initial CQ, perceived inclusion, and CQ development across the three levels of perceived cultural diversity in addition to having factor loadings partially constrained. This model produced a good fit (CFI = 0.933, RMSEA = 0.030); however, the chi-square difference test showed a significant difference in the fit of the model with structural paths and factor loadings constrained and the model with only factor loadings constrained ( $\Delta\chi^2 = 11.52$ ,  $\Delta df = 4$ ,  $p < 0.01$ ). This indicated that not all structural paths were equal across the three levels and the presence of moderation. Using the critical ratio difference method, we determined that the path from perceived inclusion to CQ development was responsible for the lack of equality in structural paths. After we relaxed the equality constraint on this path, the model demonstrated a good fit (CFI = 0.931, RMSEA = 0.030) and there were no significant differences in chi-square values ( $\Delta\chi^2 = 0.76$ ,  $\Delta df = 3$ , *n.s.*).

The results of the path analyses and multi-group SEM are shown in Fig. 1a. The relationship between initial CQ and perceived inclusion was significant and invariant across the three levels of perceived cultural diversity (direct effect = 0.39,  $p = 0.0001$ ; Hypothesis 3a was not supported). The relationship between perceived inclusion and CQ development was significant at all three levels, but the relationship was significantly stronger at the high level of perceived cultural diversity (direct effect = 0.45,  $p < 0.0001$ ) compared to the low and moderate levels (direct effects at both levels = 0.21,  $p < 0.0001$ ). Thus, perceived cultural diversity moderated the relationship between perceived inclusion and CQ development (Hypothesis 3b supported).

We conducted a supplementary multi-group SEM to test whether perceived cultural diversity moderated the relationships between the four dimensions of initial CQ, perceived inclusion, and the four dimensions of CQ development. Following the same procedures, we uncovered the presence of moderation. The direct effect of initial

<sup>1</sup> We had originally measured perceived team cultural diversity with a four-point scale: 1 = not at all diverse, 2 = a bit diverse, 3 = somewhat diverse, or 4 = extremely diverse. In light of the diversity of our sample, there were not enough participants in the two least diverse groups to perform separate analyses, so we combined these two groups before conducting further analyses.

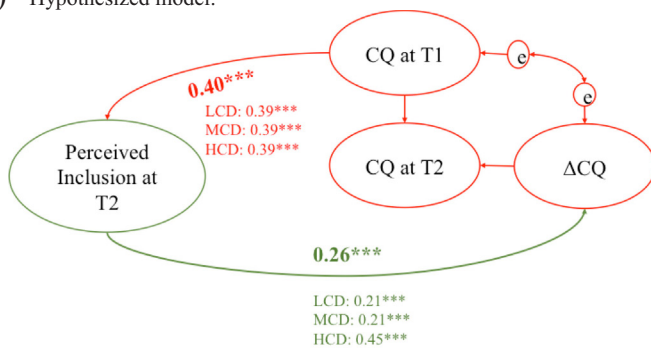
**Table 1**  
Means, standard deviations, and correlations.

Variable	M	SD	1	2	3	4	5	6	7	8
1. CQ (T1)	3.51	0.47								
2. Perceived workgroup inclusion (T2)	4.09	0.56	0.20***							
3. CQ (T2)	3.76	0.51	0.50***	0.31***						
4. ΔCQ	0.25	0.49	-0.45***	0.13***	0.55***					
5. Perceived cultural diversity (T2)	2.01	0.71	0.17***	0.15***	0.16***	-0.01				
6. Social desirability (T1)	3.14	0.57	0.16***	0.14***	0.20***	0.05	0.10**			
7. Female (T1)	0.49	0.50	0.01	0.10**	0.08*	0.07*	0.03	0.12**		
8. International experience (T1)	3.18	1.18	0.24***	0.02	0.14***	-0.09**	0.05	-0.02	-0.04	
9. Cultural majority (Caucasian, T1)	0.38	0.49	-0.13**	-0.02	-0.12**	0.01	-0.15***	-0.13***	-0.10**	-0.11**

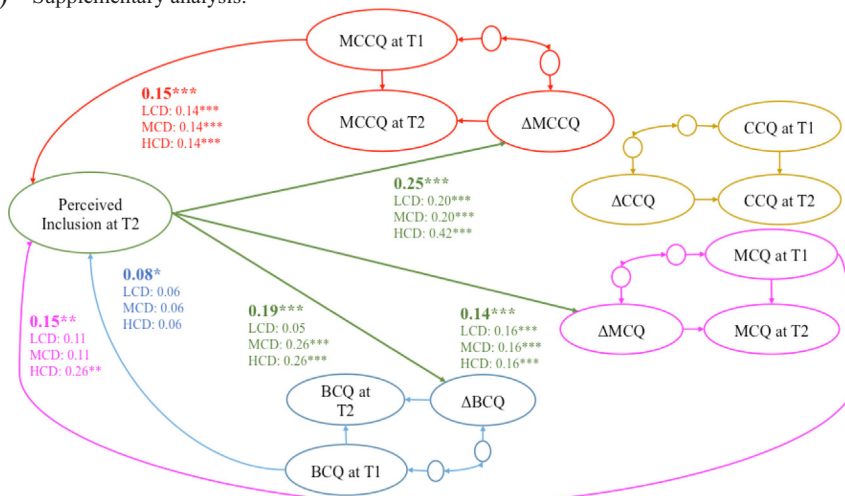
Notes:  $N = 925$ ; T1 = variable measured at Time 1, T2 = variable measured at Time 2; CQ = cultural intelligence, ΔCQ = development (change in CQ from T1 to T2).

\*\*\*  $p < 0.0001$ .  
\*\*  $p < 0.01$ .  
\*  $p < 0.05$ .

a) Hypothesized model:



b) Supplementary analysis:



motivational CQ on perceived inclusion was significant at the high level of perceived cultural diversity (direct effect = 0.26,  $p < 0.01$ ) and not significant at the low and moderate levels (both direct effects = 0.11, *n.s.*). The direct effect of perceived inclusion on metacognitive CQ development was stronger at the high level of perceived cultural diversity (direct effect = 0.42,  $p < 0.0001$ ) compared to the low and moderate levels (both direct effects = 0.20,  $p < 0.001$ ). The direct effect of perceived inclusion on behavioral CQ development was significant at the high and moderate perceived diversity levels (both direct effects = 0.26,  $p < 0.001$ ) and not significant at the low level (direct effect = 0.05, *n.s.*). Fig. 1b summarizes the results.

**Fig. 1.** SEM results.

Notes:  $N = 925$ ; \*\*\* $p < 0.0001$ , \*\* $p < 0.01$ , \* $p < 0.05$ .

LCD = low, MCD = moderate, HCD = high perceived cultural diversity; CQ = cultural intelligence, MCCQ = metacognitive CQ, CCQ = cognitive CQ, MCQ = motivational CQ, BCQ = behavioral CQ, Δ = development (change from T1 to T2). For clear presentation, only significant paths are shown and the effects of control variables are not depicted.

#### 4. Discussion

Our findings extend research on CQ, perceived inclusion, and perceived cultural diversity. While much of the research on antecedents of CQ has focused on the role of international experience (Fang et al., 2018), our work showed that perceived inclusion and perceived cultural diversity in workgroups provide additional routes to developing CQ. Specifically, the relationship between perceived inclusion in a workgroup at T2 and CQ development between T1 and T2 was stronger for individuals who perceived greater cultural diversity in their workgroups. Thus, our results suggest that individuals are able to enhance their CQ over time when they feel a sense of being valued and included while working in groups with members who they perceive to be



culturally different. Our supplementary results suggested that this is likely because high levels of perceived inclusion and perceived cultural diversity in workgroups offer more opportunities to discover and reflect on others' cultural differences (enhancing metacognitive CQ) and practice behavioral adjustments to other's cultural differences (enhancing behavioral CQ). Additionally, high levels of perceived inclusion appear to boost individuals' drive and confidence to engage with and learn about others' cultural differences (enhancing motivational CQ) regardless of whether these individuals perceive cultural diversity in a workgroup to be lower or higher.

Furthermore, our findings contribute to emerging research on individual differences in perceived inclusion (e.g., Cottrill et al., 2014; Downey et al., 2015). While research has not previously examined CQ as a factor contributing to perceived inclusion, we demonstrated that individuals with high initial CQ at T1 perceived higher levels of inclusion in their workgroups at T2. Our supplementary analysis, which showed that the metacognitive and motivational dimensions of initial CQ at T1 had the strongest relationships with perceived inclusion at T2, offer potential explanations. Specifically, individuals with a high level of awareness and understanding of their own and others' cultural differences (metacognitive CQ) are likely to be particularly mindful when culturally different workgroup members share information and thus are likely to engage them in activities and decision making in culturally relevant ways. Further, individuals with high levels of drive and perseverance when dealing with cultural differences (motivational CQ) are likely to show eagerness to collaborate with culturally different others, invoking reciprocal engagement and appreciation by other workgroup members that are likely to facilitate their own perceptions of workgroup inclusion.

Finally, our findings augment previous research that has underscored the importance of perceived inclusion for learning within workgroups (Nishii, 2013) and research highlighting the positive effects of cultural diversity in workgroups (Stahl et al., 2010). Our study points to how considering individuals' sense of inclusion in their workgroups and perceptions of workgroup composition could be significant levers in developing further CQ. This linkage between the individual and the workgroup has been neglected in past CQ research that has prioritized factors such as international travel and work experience (Fang et al., 2018).

#### 4.1. Limitations and future directions for research

As with any research, there are potential limitations to acknowledge that provide avenues for future research. Even though most respondents had work experience (92%), they were undergraduate students. Future studies would benefit from incorporating a wider variety of respondent backgrounds. Also, while perceived cultural diversity is a valid approach to measuring diversity since people often act on the basis of their perceptions (Shemla et al., 2016), incorporating objective diversity measures could expand research opportunities. Furthermore, while the frequency of international travel is a widely used measure of international experience (Moon et al., 2012), other measures (e.g., type and length of travel, physical and cultural distance to a destination) could be integrated in future research. Future research would also benefit from considering the role of other factors related to CQ such as the degree to which individuals feel positive or negative about cultural diversity and contextual or organizational factors such as climate for inclusion (Nishii, 2013) and inclusive leadership (Randel et al., 2018). Finally, future research using more sophisticated research designs and analyses, such as repeated measures in at least three waves and latent growth curve modeling, could better assess the direction(s) of causality among the study variables.

#### 4.2. Implications

Our findings suggest that workgroup leaders should be mindful of

how perceived inclusion can be facilitated as a way of maximizing CQ development. Leaders can facilitate inclusion by seeking divergent perspectives from workgroup members such that individual differences are incorporated into a group's work; further, leaders should consider what they might do so that each individual perceives that he or she is included and able to fully contribute (Randel et al., 2018). When inclusion and CQ development are purposefully pursued throughout the organization, a more multicultural form of organizational development can be achieved (Gravin & Pereiras, 2019).

Further, our research suggests that by recruiting new hires who already have high levels of CQ and/or implementing initiatives that purposefully enhance employees' CQ, organizations could facilitate greater perceived inclusion among its members. Ensuring that culturally intelligent individuals are placed in workgroups that are moderately to highly culturally diverse may allow for the development of even higher levels of CQ through factors such as perceived inclusion. Thus, this study provides practically relevant information about how human resource professionals and leaders can implement specific practices to realize the benefits of perceived inclusion and CQ development.

## 5. Conclusion

The high demand for individuals who can be successful in culturally diverse environments necessitates a plentiful supply of culturally intelligent professionals. This research provides guidance about factors that can contribute to the development of individuals' CQ and offers a launching point for further studies at the intersection of CQ, inclusion, and workgroup composition.

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**Valerie Alexandra:** Conceptualization, Methodology, Writing - original draft, Writing - review & editing. **Karen Ehrhart:** Conceptualization, Methodology, Writing - original draft, Writing - review & editing. **Amy E. Randel:** Conceptualization, Methodology, Writing - original draft, Writing - review & editing.

## Declaration of competing interest

The authors declare that they have no conflicts of interest.

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