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# **CULTURAL INTELLIGENCE AND WORK-RELATED OUTCOMES: A META-ANALYTIC REVIEW**

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## **INTRODUCTION**

While there are various definitions of (and names for) cross-cultural competencies (see Andresen and Bergdolt, 2016), a majority of studies in management refers to cultural intelligence CQ as being “a person’s capability to adapt effectively to new cultural contexts” (Earley and Ang, 2003, p. 59). Among the instruments for assessing CQ (Ang and Van Dyne, 2008; Leung, Ang, and Tan, 2014; and Matsumoto and Hwang, 2013), the four dimensional 20-item CQ scale offered by (Ang et al., 2006) has been utilized the most (see Leung et al., 2014; Ott and Michailova, 2016). The dimensions include cognitive (CCQ), metacognitive (MeCQ), motivational (MoCQ), and behavioral facets (BCQ). While the existing research has contributed to our understanding of CQ’s role in various work-related outcomes, it is characterized by a) disagreement among researchers regarding the conceptualization and dimensionality of CQ, b) conflicting findings regarding the direction and magnitude of the relationship between CQ and various outcomes, and c) inconsistencies regarding the incremental predictive validity of CQ.

We, first, meta-analytically review the empirical research that tested the associations between CQ (dimensions) and work-related outcomes. Thus, we offer a comprehensive and precise assessment of the direction and magnitude of associations of CQ (dimensions) with work-related outcomes (as called for, e.g., in Blasco, Feldt, and Jakobssen, 2012), which will support theorizing on the relative importance of CQ and the individual CQ dimensions (Ang et al., 2007). Second, we test whether we are able to better explain work-related outcomes by looking at CQ in addition to the five-factor model of personality (FFM) and emotional intelligence (EQ) (test of incremental validity). Hence, we contribute to the literature in uncovering the relative incremental validity of CQ (lately questioned by researchers, e.g., Blasco et al., 2012) over the FFM and EQ which may help to develop more accurate theoretical models across different concepts of cross-cultural competence (Leung et al., 2014). Third, we explore (using commonality analysis) on the dimensionality and conceptualization of the CQ construct, as recent research has called into question the constituent dimensions and the manner in which these dimensions interplay or not (e.g., Blasco et al., 2012).

## THEORETICAL BACKGROUND AND RESEARCH PROPOSITIONS

We summarize the status quo of arguments on the role of CQ and its dimensions as direct determinants to work-related outcomes (i.e., attitudes, intentions, as well as behaviors and performance outcomes). Cross-cultural adjustment is the degree of comfort that an employee has with different aspects of a new, host country (Black, 1988). It comprises the comfort achieved (a) by generally adjusting to the new environment in terms of housing conditions, healthcare etc. (general adjustment), (b) in interacting with nationals, and (c) in adapting to new work roles, values, expectations, and standards (Black and Stephens, 1989). Job satisfaction likewise is a positive emotional state resulting from the evaluation of one's job experience (Locke, 1976). Expatriation intention refers to the self-acknowledged conviction to work as an expatriate and the conscious planning to do so in the future (e.g., Remhof, Gunkel, and Schlägel, 2013). Studies that proposed a positive association of CQ with cultural adjustment, job satisfaction, and expatriation intention make use of the literature on stress (Befus, 1988). A high CQ reduces stress in a new, host country and workplace and therewith induces higher comfort, satisfaction, and expatriation intention (Huff, 2013). Likewise, ideas of uncertainty reduction are referred to (see Berger and Calabrese, 1975): Living in a different culture leads to confusion caused by the uncertainty attached to this new environment. This stress from uncertainty – reduced by a high CQ – might lead to a cultural shock and therewith to poor comfort and dissatisfaction and a lower intention to work abroad. CQ increases the individual's capabilities in terms of coping with multi-cultural situations, interactions, and culture shock. They are better able to cope with the uncertainties surrounding cross-cultural relationships and to find appropriate behaviors, which avoid negative outcomes due to cultural uncertainties (Bücker et al., 2014). Some authors, especially in the field of cultural adjustment, more specifically refer to the dimensions of CQ. CCQ helps to properly map the new situation (Konanahalli et al., 2014), reduces uncertainty and therewith stress and enables to behave, communicate, and interact in a proper way with others (Huff et al., 2014). It positively affects general, interaction and work adjustment, satisfaction, and probably also expatriation intention (Remhof et al., 2013). Individuals with a high MeCQ have the capability to learn about the new culture, appropriate behaviors, and interactions in the (work) environment (Huff et al., 2014; Konanahalli et al., 2014). It positively affects general, and especially interaction and work adjustment, as well as job satisfaction. Similarly, understanding the importance of preparation and planning (e.g., cross-cultural training) – involved in MeCQ – may advance the intention to work abroad (Remhof et al., 2013). Individuals with a high MoCQ are motivated to explore cultural situations and enjoy new experiences, which makes MoCQ probably the most important predictor of the intention to work abroad (Remhof et al., 2013). Individuals with a high MoCQ perform better in adapting to different environments, and therewith achieve a higher comfort in adjusting to new environments (Templer, Tay, and Chandrasekar, 2006; Chen, Wu, and Bian, 2014). They are confident in their ability to interact with culturally different others and should therefore achieve a higher comfort in interacting (Templer et al., 2006; Chen et al., 2014). Following the same logic, they are more willing to engage in different ways of working in the new environment and are more likely to achieve comfort and satisfaction from new work demands (Templer et al., 2006; Chen et al., 2010; Huff et al., 2014; Konanahalli et al., 2014). Finally, a high BCQ helps to demonstrate appropriate behaviors, verbal and non-verbal actions, and therewith helps individuals to cope with (work) situations and interactions (Huff et al.,

2014), and might likewise increase the willingness to adapt behavior to meeting the specifics of the cultural setting which may positively influence expatriation intention (Remhof et al., 2013).

*Proposition 1: CQ and its dimensions are positively associated with (a) general, (b) interaction, and (c) work adjustment.*

*Proposition 2: CQ and its dimensions are positively associated with job satisfaction.*

*Proposition 3: CQ and its dimensions are positively associated with the intention to work as an expatriate.*

A transformational leader inspires followers to achieve a joint vision and to accomplish high levels of performance (George and Jones, 2012). Different cultural business behaviors, relationships, and preferred leadership styles pose a challenge to successful cross-cultural leadership (e.g., Dorfman, Hanges, and Brodbeck, 2004). Thus, cross-cultural leadership requires the capability to function in different cultural contexts which is at the heart of CQ (Rockstuhl, Seiler, Ang, Van Dyne, and Annen, 2011). Job performance is an individual's behavior and actions that are relevant to achieving the objectives of an organization (Campbell, McCloy, Oppler, and Sagner, 1993) or simply the degree to which individuals meet role expectations (Ang et al., 2007). It is differentiated into task or in-role performance (i.e. the technical and managerial activities that are expected to successfully perform the job), and contextual or extra-role performance (i.e. activities to support the organizational and social environment of the organization, such as reliability) (Borman and Motowidlo, 1993; Motowidlo, Borman, and Schmit, 1997). As the latter is more concerned about relationships it is interrelated to the concept of transformational leadership. Studies on the association between CQ and (the different facets of) performance and transformational leadership mostly concentrate on the overall CQ construct and outline positive associations (e.g. Rose, Ramalu, Uli, and Kumar, 2010). Theoretical arguments referred to are awareness (see Offermann and Phan, 2002), social categorization (see Rockstuhl et al., 2011; Rockstuhl and Ng, 2008), and role expectations (see Stone-Romero, Stone, and Salas, 2003) as will be seen in the arguments (on the specific dimensions of CQ) outlined below. Individuals with a high CCQ and MeCQ anticipate and understand cultural systems and the social interaction within; they are aware of how their own values may bias their perception of behaviors and how these relate to others' expectations on leader-follower relationships and enables the adjustment of mental models in interaction (Offermann and Phan, 2002; Rockstuhl et al., 2011). Moreover, they have a more accurate understanding of role expectations (Ang et al., 2007; Rose et al., 2010). Individuals with a high MoCQ direct attention and energy towards cross-cultural situations and tasks which facilitates learning about role expectations and goal accomplishment (Rockstuhl et al., 2011; Ang et al., 2007; Rose et al., 2010). Finally, a high BCQ enables the individual to use culturally appropriate words, phrases, and gestures in communication which facilitates effective interactions and inspiration and the satisfaction of role expectations (Rockstuhl et al., 2011). Building on social categorization theory (Turner, 1987), Rockstuhl et al. (2011) assume that employees with a high CQ are less likely to engage in exclusionary reactions due to a perception of dissimilarity to specific members of the work group which positively affects leadership success and extra-role performance (see also Rockstuhl and Ng, 2008).

*Proposition 4: CQ and its dimensions are positively associated with transformational leadership.*

*Proposition 5: CQ and its dimensions are positively associated with job performance.*

Various authors have emphasized the critical importance of incremental predictive validity as an important step in evaluating the usefulness of CQ compared to other constructs (Leung et al., 2014; Ott and Michailova, 2016). It refers to the extent to which CQ and its dimensions can explain variance in work-related outcomes not explained by other predictors. The value of the CQ construct increases if it has incremental validity above constructs, such as general mental ability (GMA), FFM personality traits, and international experience, traditionally used, e.g., in the selection of expatriates (Leung et al., 2014). Several meta-analyses confirmed that personality traits are a major determinant of work-related outcomes, such as transformational leadership (e.g., Bono and Judge, 2004), job satisfaction (e.g., Judge, Heller, and Mount, 2002), and job performance (e.g., Barrick, Mount, and Judge, 2001). Prior research also argued that CQ should show incremental validity above related constructs such as emotional intelligence (Thomas et al., 2015). While the majority of prior findings provide initial evidence of CQs additional value above important other variables, there has been no systematic effort to test the incremental validity of CQ and its dimensions above FFM and EQ for a broader set of work-related outcomes.

*Proposition 6: CQ and its dimensions account for significant incremental validity above the FFM personality traits and EQ in the prediction of work-related outcomes.*

Ang et al. (2007, p. 338) described CQ as an aggregate multidimensional construct in which the four CQ dimensions "...are qualitatively different facets of the overall capability..." and that the CQ dimensions "...may or may not correlate with each other." However, the adequate dimensionality and conceptualization of CQ is subject of an ongoing discussion. This becomes most obvious recalling the competing CQ measure by Thomas et al. (2015), which involves three dimensions of CQ only and does not explicitly refer to the motivational or behavioral facet. Moreover, it follows the view that these dimensions need to be interrelated and will involve interactive effects especially with regard to MeCQ (Thomas et al., 2015). Hence, questions on the CQ construct center around a) which dimensions should be included in CQ, b) how these CQ dimensions form the construct, and c) through which process the CQ dimensions explain variance in different relevant outcomes (Thomas, 2010). We argue that past research does not fully reveal the unique and common effects of CQ dimensions. CQ dimensions' common effects in explaining variance in different work-related outcomes refer to the extent to which changes in a work-related outcome result from changes in two, three, or all four dimensions of CQ. This means that specific parts of the variance in a work-related outcome may be attributed to the interrelation between two, three, or all four CQ dimensions. Studies that use overall CQ might miss to uncover the unique contribution of a single CQ dimension or a set of CQ dimensions in explaining variance in an outcome.

*Proposition 7: The four CQ dimensions are all relevant in explaining work-related outcomes.*

*Proposition 8: The four CQ dimensions jointly explain work-related outcomes (a) beyond their unique effects and (b) beyond the effect of all four CQ dimensions.*

## **METHODS**

We focus on studies that have a) used the CQ scale (Ang et al., 2008) and b) examined relationships between CQ and individual work-related outcomes that have been examined most often in the existing literature (at least in five studies). To identify relevant studies we applied a multi-step procedure. We reviewed the identified articles for potential inclusion based on several selection criteria. First, the studies had to be quantitative in nature and had to measure CQ or one of its dimensions via the CQ scale (Ang et al., 2006). Second, studies had to report sample sizes and effect size information that represented the relationship between CQ and a performance outcome. In the case that studies did not report correlation coefficients we followed the recommendations in the literature (Lipsey and Wilson, 2001; Peterson and Brown, 2005) and used information that allowed for the computation of a correlation coefficient. The final data set of the present meta-analysis was based on 110 studies, and it included 121 independent samples, and 27,476 primary study participants. To assess the direct association between CQ (and its dimensions) and the different individual outcomes we applied bivariate meta-analysis (Hunter and Schmidt, 2004). In addition to reporting the uncorrected correlation coefficient, we corrected for measurement error. Moreover, we applied a test of incremental validity and a commonality analysis to test the unique and common effects of the CQ dimensions.

## **RESULTS**

Our results show, that overall CQ as well as its four dimensions are positively related to individuals' general adjustment, interaction adjustment as well as for work adjustment. Therefore, our results support Proposition 1. Overall CQ as well as all four dimensions are statistically significant and positively related to job satisfaction. Thus, Proposition 2 is supported. Overall CQ and the four CQ dimensions are statistically significantly and positively related to expatriation intention. Therefore, also Proposition 3 is supported. The results show that overall CQ as well as the CQ dimensions are positively and statistically significant related to transformational leadership, providing support for Proposition 4. Finally, the results show a positive and significant relation between CQ and its dimensions and job performance supporting Proposition 5.

To test the incremental validity of CQ and its four dimensions, we followed the procedure in previous studies (e.g., Harms and Credé, 2010b; O'Boyle et al., 2011) and used meta-analytic correlation matrixes and the respective harmonic mean for each work-related outcome. We used the respective matrix to conduct a path analysis in which the five personality traits and EQ are entered first, overall CQ is added to the FFM personality traits and EQ in the second step, and the four CQ dimensions are added to the personality traits and EQ instead of overall CQ in the third step. The results for general adjustment show that adding overall CQ significantly increases the explained variance. The results for interaction and work adjustment are very similar and both likewise show a significant increase in the share of explained variance. Moreover, overall CQ explains a significant share of the variance in job satisfaction above and beyond personality traits and EQ. We observe a somewhat lower level of total explained variance for our behavioral and performance-related outcomes, still the results support incremental validity of the overall CQ construct: Adding overall CQ to EQ and personality traits results in a significant increase

in the explained variance for transformational leadership and job performance. Hence, we can conclude that the overall CQ construct has incremental validity over the FFM traits and EQ. The dimensions of CQ have incremental validity above the FFM traits and EQ for all work-related outcomes. We conclude that Proposition 6, that CQ and its dimensions account for significant incremental validity above the traits and EQ in predicting work-related outcomes is supported.

To test Propositions 7 and 8, we partitioned the unique and common effects of individual CQ dimensions using a commonality analysis (Mood, 1969). The basis for the calculations is the meta-analytic correlation matrix. The results show that each of the four CQ dimensions has unique effects on work-related outcomes. The unique effects explain between 36% (transformational leadership) and 58% (general adjustment) of the CQ dimensions' total effect. Thereof, MoCQ explains the largest portion of the variance observed in 6 of the 7 work-related outcomes (between 9% for leadership to 56% for general adjustment). BCQ achieves a high share of explained variance for leadership and job performance (19% for both). The results also show that the portion of common variance explained by the CQ dimensions is for 5 work-related outcomes larger than the unique variance (for interaction and work adjustment, job satisfaction, leadership and job performance), indicating that common effects explain a major part of these outcomes. There are significant common effects between sets of two (second-order commonalities), three (third-order commonalities), and all four CQ dimensions (fourth-order commonalities). All second-order commonalities explain between 15% (expatriation intention and general adjustment) and 26% (transformational leadership) of the CQ dimensions' total effect. Three of the four third-order commonalities show a significant joint effect for at least one outcome. The fourth-order commonality is significant for all seven outcomes. This supports Proposition 7 and 8.

## DISCUSSION

Our results show that both overall CQ and the four CQ dimensions have a significant positive association with the 7 work-related outcomes included in this analysis. These findings provide a clearer and more robust picture of the direction and magnitude of effect sizes than the in part inconsistent results in existing primary studies. Our results also show that the predictive validity of the CQ dimensions is fairly constant across a broad set of different outcomes, covering attitudes, intentions, behavior, and performance in an international context. We find the strongest associations to work-related outcomes for MoCQ through all parts of our analyses. Moreover, our results show that MoCQ and BCQ are of special relevance when it comes to behavioral and performance related outcomes. In sum, the findings of this meta-analysis demonstrate that CQ and its dimensions should be considered an important predictor of different work-related outcomes and that CQ is a construct that is worth future research efforts. Second, the results of the incremental validity test indicate that overall CQ shows a significant incremental validity over FFM traits and EQ in predicting work-related outcomes. Compared to overall CQ, the contributions of the individual CQ dimensions are substantially larger. Hence, the findings support researchers who argued that CQ is a key determinant of work-related outcomes in a cross-cultural context (e.g., Leung et al., 2014). Third, our results show that while the four CQ dimensions are moderately to highly correlated, they are not interchangeable. All four dimensions are relevant determinants of work-related outcomes; especially MoCQ proves to have a dominant effect in all analyses conducted. Our results show that unique effects as well as joint effects of sets of two, three, or all four CQ dimensions respectively account for a significant part of the explained variance across work-related outcomes. Our findings show that both strength



and structure of unique and common effects vary across outcomes, and therewith our study reveals a specific process through which the CQ dimensions relate to these different outcomes.

**REFERENCES AVAILABALE FROM THE AUTHOR(S)**