

Micro-level cultural profiles on teamwork orientation and contribution

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Abstract:

This study utilised the collectivism and power distance dimensions to examine the prevalence of micro-level cultural profiles in the predefined categorisation of national cultural settings and their effect on team orientation and contribution. Based on a multi-year sample of 11,058 individuals from 157 countries, our analysis confirmed four culture-based clusters: collectivist-high power distance, collectivist-low power distance, individualist-high power distance and the individualist-low power distance profiles. As expected, the collectivist-based profiles were prevalent among the non-western respondents, but the individualist-based profiles were not prevalent among the western respondents. Similarly, the collectivist-low power distance and individualistlow power distance profiles reported higher contributions to the team. These findings contradict the prevalent assumptions about the east-west cultural differences. The study shows that the micro-level analysis of individual values is necessary for understanding individual behaviours in workgroups.

Keywords: profile analysis | culture | micro-level values | collectivism | individualism | power distance | team orientation | team contribution

Article:

1 Introduction

An explosion of research into the effects of cultural differences dates back to the 1980s when Hofstede's (1980) "Culture's Consequences" provided a framework for quantifying cultural values. Since then, there has been no shortage of research on the role of culture in the workplace in general (Kirkman et al., 2006; Tsui et al., 2007, Taras et al., 2010) and GVTs in particular (Taras et al., 2019). However, most of the prior research on the role of culture in the workplace focused on averages or cultural indices, that is, national average or personal level on a particular continuum or continua along cultural dimensions. The present study builds on this research and takes it a step further by shifting the focus from cultural averages to cultural profiles.

The person-centred approach to research that focuses on identifying groups that share similarities on a set of attributes known as profiles or configurations is applied extensively in

research (e.g., Somers, 2009; Meyer and Morin, 2016; Meyer et al., 2013; Ronen and Shenkar, 1985, 2013; Townsend et al., 1990). The approach has also been applied to the study of culture, and some of the earlier research on culture mostly focused on the macro-level by clustering countries (Ronen and Shenkar, 1985, 2013; Townsend et al., 1990). For instance, Ronen and Shenkar (1985, 2013) clustered countries into five different cultural profiles, involving Anglo, Oriental, Latin European, Nordic and Germanic profiles. These macro-level clusterings show that individualism and low-power distance values are prominent in western settings, while collectivism and high-power distance values are prominent in the non-western contexts (e.g., Hofstede, 2001).

It is worth noting that the issue of the level of analysis is very controversial – and very consequential – in research on culture. Hofstede, the “father” of cross-cultural research, tirelessly repeated that his model of culture and the VSM culture measurement instrument were designed for and to be exclusively used for analysing culture at the national level of analysis (e.g., Hofstede, 2001, 2002). The notion that studying culture at the individual level would inevitably constitute the ecological fallacy (Thorndike, 1939; Jargowsky, 2004).

As Steel and Taras (2010) note, the fear of committing the ecological fallacy “has almost precluded any attempts at ecological inference, that is bridging levels of analysis in cross-cultural studies” (p.214). However, as the need to measure cultural values at the individual level grew and the understanding of the methodologies surrounding the issues of measurement level in cross-cultural studies advanced (Schwartz, 1994; Van der Vijver et al., 2008), the debate shifted from repeating Hofstede’s mantra that “culture is a national-level phenomenon” to a search for a model and instrument for measuring cultural values at the individual level of analysis. The practice of using Hofstede’s VSM to measuring cultural values at the individual level, which was used in literally hundreds of studies (c.f., Taras et al., 2010, 2009) was replaced with numerous attempts to develop instruments for measuring cultural values “at the individual” level, such as those by Dorfman and Howell (1988); Maznevski and DiStefano (1995) and Yoo et al. (2011) to name a few. Our study follows this line of inquiry and looks at the phenomenon of cultural profiles at the individual (micro) level. The burgeoning research in this stream has utilised micro-level data in culture-based profiles. For instance, Venaik and Midgley (2015) found transnational and subnational profiles (archetypes) across four countries and suggests the need to recognise culture as a combination of universal as well as unique characteristics. Similarly, Richter et al. (2016) utilised individual-level data from 10 countries and identified six cultural profiles, and asserts the need for the utilisation of the profile approach in cross-cultural research. Yet, none of these studies has examined the effect of culture-based profiles on attitudes in work teams or groups.

The effect of culture on attitudes and behaviours in work teams via the variable centred approach is well documented in the literature (e.g., Bouncken et al., 2016; Bochner and Hesketh, 1994; Clugston et al., 2000; Erez, 2010; Jackson et al., 2013; Townsend et al., 1990; Yuan and Zhou, 2015). This research suggests that while cultural diversity can broaden the knowledge and perspectives in a team, it can suppress team creativity through negative social processes (Leung and Wang, 2015). In a conceptual model, Yuan and Zhou (2015) theorised that differences in power distance affect group members’ creativity. The outcome of this research shows that cultural variables affect attitudes in teams and team processes, but research is yet to examine these effects via the person-centred (profile) approach.

Hence, the goal of this study is to examine the effect of micro-level cultural profiles on team members’ affinity and contributions to the team. Specifically, the study examines the emergence of profiles based on individual-level collectivism (or individualism) and power distance cultural values. Since individuals’ value orientations affect attitudes holistically, the person-centred

approach provides a complete assessment of the effect of culture on individuals' orientation and contribution in a team. Profiling yields a classification that constitutes a complex theoretical statement for sensemaking, reasoning, and conceptualisation (Ronen and Shenkar, 2013).

Our choice to focus on collectivism and power distance was driven by several considerations. First, these are the two cultural dimensions that are commonly considered most relevant in the work context. For example, literature reviews show that cultural value instruments commonly used in international business research (e.g., Taras et al., 2009) and studies into the role of culture in the workplace (e.g., Kirkman et al., 2006; Taras et al., 2010; Tsui et al., 2007) most often focus on collectivism-individualism, followed by power distance as the second most popular dimension. The popularity of other dimensions from Hofstede's (1980) original model, namely, masculinity-femininity and uncertainty avoidance, is much lower. The long-term orientation (or Confucian dynamism), which was added later (Hofstede and Bond, 1988), and the dimensions added in the most recent iteration (e.g., indulgence in Hofstede et al., 2010) are seen in the literature much less. Second, these two cultural dimensions have been shown to affect groups at the macro and micro levels (e.g., Jackson et al., 2006; Yuan and Zhou (2015), and the profile approach enables the examination of one's total psychological states (overall preference) rather than the individual variables. Third, the maps of cultural regions of the world tend to show that individualism and low-power distance are commonly seen in "the west", while collectivism and high-power distance values are dominant in "the east" (e.g., Hofstede, 2001). Because much of the crosscultural research revolves around the east-vs.-west comparison, the focus on these two dimensions is a natural outcome of this comparison. Perhaps this is why many studies chose these two dimensions specifically for their analysis (e.g., Bochner and Hesketh, 1994; Bond et al., 1985; Hwang and Francesco, 2010; Kirkman et al., 2009; Leung, 2001; Ohbuchi et al., 1999; Perea and Slater, 1999; Rosen, 1997; Schermerhorn and Bond, 1997; Yang, 2002, to name just a few). It is important to note that, empirically, individualism and power distance are closely related (e.g., strong negative correlations were pointed out by Hofstede, 2011). However, conceptually, the two are distinct cultural values that play an important role in the work settings. Thus, we chose these two dimensions for our analysis.

This study extends research on culture-based profiling and the effect of culture on team or group attitudes and makes a two-fold contribution. First, the study examines micro-level culture-based profiles using the collectivism and power distance dimensions. A four-profile solution was derived based on the analysis. It includes two profiles comprising dominant societal cultures (collectivist-high power distance and individualist low power distance) and the two profiles that comprise non-dominant societal cultures (collectivist-low-power distance and individualist-high-power distance). The four profiles are distinct from prior micro-level culture-based profiles and provide knowledge of the prevalence of such profiles in society, especially the sub-cultural profiles. Culture in the national settings is not monolithic; therefore, non-dominant cultures do exist within the broad national cultural frame (e.g., Jackson et al., 2006; Venaik and Midgley, 2015). This study increases our understanding of these dominant and non-dominant value configurations in society and the work setting.

Second, the study contributes to the literature stream on culture and teams by examining the effect of culture from the profile perspective. This approach enables the examination of collectivism and power distance value orientations holistically on members' attitudes and contributions to the team. Although the study of culture shows that collectivism may be associated with team or group affinity, this study reveals that an individual's orientation on power distance combines to affect this association holistically. Hence, the study provides further insight for better

theorising of the role of culture in teams, and for managers, the determinant of better team performers.

2 Conceptual analysis and hypotheses

2.1 Cultural profiling

Cultural values are a set of consciously and subconsciously held beliefs and norms that influence individual preferences and behaviours and are often anchored in the customs and practices of a society (Adler, 2002). Culture is ubiquitous; therefore, the combination of individual preferences – profiles – is a naturally occurring phenomenon. Hence, applying the person-centred analytical approach to the study of culture enables the identification of individuals who share similarities on a set of values known as profiles or configurations. An essential defining feature of profiles is the internal cohesion, such that the presence of certain attributes suggests the reliable occurrence of others in the profile (cf. Sinclair et al., 2005). Unlike the variable-centred approach, where the effects of constructs are examined individually, the profile or configural approach enables the examination of the combined effect of constructs through the lens of the study subjects (Somers, 2009).

Some of the earlier attempts at investigating cultural profiles have been at the macrolevel, particularly with the publication of the Hofstede country-level index. For instance, Townsend et al. (1990) examined the effect of country-based profiles and culture-based differences on pay practices. A derivation of five different culture clusters had a significant effect on pay practices. Bochner and Hesketh (1994) used Hofstede's national index to examine the combined effect of individualism and power distance on employees in Australia. They found that low individualistic-high-power distance groups, who were mostly immigrants, were considered outgroups. In contrast, the high individualistic-low power distance group was seen as an in-group in society

Even earlier, Ronen and Shenkar (1985) employed the cluster analysis approach at the macro-level to derive five different cultural profiles using language, religion, geography and other factors. The culture profiles included Anglo, Oriental, Latin European, Nordic and Germanic profiles. In a follow-up study in 2013, using updated data from Hofstede's dimensions, the authors confirmed the clusters and reported that the Anglo cluster (akin to the present western perspective) reported individualistic and low-power distance, while the Confucian cluster (akin to present eastern perspective) reported collectivist and high-power distance (Ronen and Shenkar, 2013). Further, they found that the Anglo cluster is characterised by a high degree of participative leadership and a low-power distance, suggesting a high level of involvement of others in decisions. In contrast, the Confucian cluster shows a small degree of participative leadership, suggesting a low level of involvement by others in decisions. These demonstrate the effect of culture-based clusters at the macro-level.

Following this line of research, Venaik and Midgley (2015) postulated a theory of cultural archetypes and identified distinct configurations of values (archetypes). They defined culture archetype as a "configuration of the fundamental values shared by a group of people and represented by a hypothetical (latent) individual who perfectly embodies these values" (p.1055). Using data for Japan, the USA, China and India from the 2005 World Values Survey, they found the existence of transnational and subnational archetypes with similar sub-cultural profiles across the four countries that are also distinct from the national cultures. Drawing from these and other studies (e.g., Tsui et al., 2007), Richter et al. (2016) utilised all four Hofstedean cultural dimensions

and, using individual-level data from 10 countries, identified six cultural archetypes that were present in all the countries. These include masculine individualists, masculine collectivists, risk-takers, low-power distance feminines, short-term oriented and power distance. Examining the effect of these configurations on entrepreneurial intention, they re-emphasised the suitability of the configural approach for analysing cross-cultural effects than the conventional approaches.

2.2 Micro-level cultural profiles and contextual prevalence

The collectivism (individualism) and power distance cultural dimensions are employed in this study for the derivation of profiles for many reasons, some of which were mentioned earlier. For instance, the correlation of two cultural dimensions at the country-level (Hofstede, 2001), suggesting a natural clustering of countries. Also, these two cultural values are the most studied in the literature among Hofstede's dimensions (e.g., Brooks, 1994; Bochner and Hesketh, 1994; Kirkman et al., 2006, 2009; Rinne et al., 2012; Ronen and Shenkar, 2013; and see the meta-analytic study by Bettencourt et al., 2001; Zhou and Shi, 2011), and the two are consistently acknowledged as some of the useful indicators of differences among societies (Ronen and Shenkar 1985; Yang and Bond 1990; Ralston et al., 1997).

Furthermore, several studies have revisited and re-examined Hofstede's original cultural dimensions. For example, in a recent comprehensive review of the model, Minkov and Kaasa (2021) showed that masculinity-femininity and uncertainty avoidance dimensions fail to replicate and, effectively, do not exist. These findings corroborate the results of numerous earlier studies that had come to the same conclusion (e.g., Merritt, 2000; Minkov et al., 2018; Beugelsdijk and Welzel, 2018). Consequently, these two values are among the most important cultural factors shown to affect attitudes and behaviours on the job including, teams and team processes (e.g., Clugston et al., 2000; Jackson et al., 2006, 2013; Triandis, 1995; Ralston et al., 1997, 1999; Rinne et al., 2012; Wasti and Önder, 2009).

The collectivism/individualism and power distance constructs are operationalised as dichotomous (opposites) ratings, suggesting that one either scores high or low on the measurement of each dimension. Although mid-range scores on these are plausible statistically, theoretically, respondents are grouped into low or high categories depending on where a score lies on the measurement continuum (Hofstede, 2001). Therefore, using the high-low categorisation on the two cultural constructs leads to a two-by-two matrix with four hypothetical configurations of culture. These are the collectivist-low power distance, collectivist-high power distance, individualistic-low power distance and individualistic-high power distance configurations shown in Table 1.

The collectivist-low-power distance profile will have a strong belief in the collective (emotionally dependent on the group) and expects equality in the distribution of power (emotionally independent from the powerful). The collectivist-high power distance profile will also have a strong belief in the collective but accepts power inequality; hence, they are emotionally dependent on a strong leader. The individualist-high-power distance profile will have a weak belief in the collective and expects inequality in power distribution. This profile is characterised by emotional independence from the group but dependent on the most powerful. Finally, the individualism-low-power distance profile is characterised by a weak belief in the collective and expectation of equality in the distribution of power; thus, emotionally independent from both the group and the most powerful.

Table 1 Proposed cultural profiles and contextual prevalence

<i>Dimensions of culture and definitions</i>	<i>Psychological collectivism (emotional dependence on groups, we consciousness)</i>	<i>Psychological individualism (emotional independence from groups, I consciousness)</i>
<i>High power distance (emotional dependence on the more powerful)</i>	<i>1 Collectivist-HPD Profile is dominant in non-western settings</i>	<i>2 Individualistic-HPD Profile is present in both settings, but prevalent in western settings</i>
<i>Low power distance (emotional independence from the more powerful)</i>	<i>3 Collectivist-LPD Profile is present in both settings, but prevalent in non-western settings</i>	<i>4 Individualistic-LPD Profile is dominant in western settings</i>

Note: HPD = high-power distance, LPD = low-power distance.

Presented in Table 1 is the prevalence of the micro-level profiles using the East-West (regional) cultural categorisation. Collectivism and high-power distance values are dominant in non-western countries, while individualism and low-power distance values are dominant in western countries (e.g., Hofstede, 2001). These macro-level correlations cannot be detached completely from the micro-level effects since individuals are socialised in the national context and culture. The national level values may influence the micro-level associations. Although we recognise that individuals' value may be distinct from the average national culture (Venaik and Midgley, 2015), we argue that the emerged clusters will follow the macro-level outcome in terms of their east-west prevalence (e.g., Ronen and Shenkar, 2013) due to the significant influence of the dominant societal values.

Thus, the collectivists-high-power distance profile, with the dominant “we consciousness and perceived power inequality” which follows the national values, will be prominent among the non-western (eastern) respondents, and the individualistic-lowpower distance profile, with the dominant “I consciousness and perceived power equality” will be prominent among the western respondents. The above argument suggests between-country differences and aligns with the cross-national comparative frame of culture (e.g., Tung, 2008; Venaik and Midgley, 2015). However, both profiles are likely to be present among respondents of the non-dominant settings but to a lesser extent. The remaining two profiles are unique theoretically and are of particular interest because the configurations are sub-cultures within the predominant frames of the western and eastern settings. This is plausible because research has reported the existence of similar sub-cultural frames across countries (Venaik and Midgley, 2015; Richter et al., 2016). The profile combination of the non-dominant profiles, collectivist-low-power distance and individualistic-high-power distance, will be present among respondents in both settings and may not strictly follow the east-west assumption. This argument suggests within-country differences and follows the intra-national cultural perspective (Tung, 2008; Venaik and Midgley, 2015). However, it is possible for the collectivist-lowpower distance profile to be prevalent among non-western respondents due to the dominant collectivist value and vice-versa. The following hypotheses are examined.

Hypothesis 1: The micro-level profiles based on the respective dominant cultural values, such as collectivist-high-power distance and individualistic-low-power distance, will be prevalent among non-western and western respondents, respectively.

Hypothesis 2: The micro-level profiles based on the sub-cultural values, such as collectivist-low-power distance and individualistic-high-power distance, will be prevalent among respondents in the non-western and western settings, respectively

2.3 Profiles orientation to teamwork

The effect of collectivism (individualism) on workgroups or teams is well known in the literature (e.g., Dierdorff et al., 2011; Hofstede, 2001; Jackson et al., 2006). Individualistic cultures stress autonomy and the feeling of merit and self-worth, which fosters a strong competitive attitude than cooperating in a group. Hence, Yuan and Zhou (2015) asserted that individualistic cultural norms may promote a focus on individual interest and competition, which may hamper the attainment of group convergence. However, in collectivist cultures, the emphasis on the group interest fosters a strong affinity to the workgroup or team (Zhou and Shi, 2011). Collectivists internalise the goals of the work team or group, which leads to performance towards the team compared to the individualists, and research shows that internalisation of values is a motivator of behaviour (Gagné et al., 2008; Ryan and Deci, 2000). Thus, research shows that individuals with collectivist cultural norms are willing and make a greater effort in a team (e.g., Driskell et al., 2010; Mathieu et al., 2008; Salas et al., 2005).

In cultures with high power distance orientation, there is a strong adherence to authority and the acceptance and dependency on the most powerful, while low-power distance value is associated with an egalitarian relationship (Hofstede, 2001; Jackson et al., 2013). One of the earlier studies on this subject using qualitative multiple case studies examined how unequal formal power among employees affect teams and showed that differences in power among employees are critical levers affecting the output of knowledge by teams (Brooks, 1994). Thus, how formal power is distributed to employees affects who may contribute to the production of knowledge and whose contributions others take seriously. Recent theoretical and empirical research have reported similar outcomes (e.g., Bouncken et al., 2016; Feitosa et al., 2017; Yuan and Zhou, 2015). According to Yuan and Zhou (2015) and Bouncken et al. (2016), the high-power distance value and the adherence to the more powerful will engender compliance – emotional dependence on the powerful and may not engender personal initiative in the team.

This background knowledge suggests that when examined together via the profile approach will reveal the complete picture of how the collectivism and power distance cultural values, in tandem, affect individual attitudes and behaviours towards teamwork. We, therefore, postulate the framework of the four profile configurations and their affinity to team values in Table 2. We adapted the profile nomenclature by Sinclair et al. (2015) to surmise the attributes of each profile. The labels were originally conceptualized using unions, which are groups of individuals with common attributes, hence, applicable to profiles. We named the collectivist-low power distance as team-devoted, the collectivist-high-power distance as team-involved, the individualist-low-power distance as team-allied, and the individualist-high-power distance as team-trapped.

The collectivist-low-power distance profile (team-devotee), which is unique and not a dominant value combination in society among the four configurations, is characterised by emotional dependence on the group but emotionally independent from the most powerful. This is a unique sub-cultural configuration, not theorised or supported in the micro-level research (e.g., Venaik and Midgley, 2015; Richter et al., 2016), but individuals with this profile are expected to exhibit the most energetic devotion to the group and its activities. Their strong belief in a team will lead to a preference for team processes, hence team chemistry and high contribution to the team

and team performance. Opposite this profile is the individualistic-high-power distance profile (the team-trapped), also a non-dominant value combination in society, will be emotionally dependent on the most powerful with a weak affinity to the group and team processes. Hence, they may not voice out their views in the group and may exhibit the characteristics of a follower (go along). Individuals with this profile will contribute the least to the team due to their little preference (affinity) for teamwork and expect little chemistry in a team. Research shows that empowering and participatory leadership and collaborative conditions are necessary for individuals' contribution and team effectiveness (e.g., Bouncken et al., 2016; Feitosa et al., 2018).

Table 2 Hypothesised cultural profiles and associated team values

<i>Collectivist-LPD Profile (team-devoted)</i>	<i>Individualist-LPD Profile (team-allied)</i>
<i>Expect equal distribution of power in a team</i>	<i>Expect equal distribution of power in a team</i>
<i>Belief in shared leadership, distributed power</i>	<i>Belief in shared leadership, distributed power</i>
<i>Strong affinity to team due to the collectivist view</i>	<i>Weak affinity to team due to the individualist view</i>
<i>Comfortable voicing opinion</i>	<i>But comfortable voicing opinion</i>
<i>Strong contribution of ideas in a group</i>	<i>Some contribution of ideas in a group</i>

Notes: HPD = high-power distance, LPD = low-power distance.

The western setting dominant individualist-low-power distance profile, labelled the team allies, is characterised by belief in distributed power but has less affinity to teamwork. They will not submit to the powerful nor the group due to the little preference for teamwork; hence, they may not expect any chemistry in a team due to their competitive attitude. Though unenthusiastic about the team processes, they may share their views in the group and make some contribution to the team. The non-western dominant profile of collectivist-high-power distance (the team involved) has a high affinity for team processes and preference for work in a team, with a non-competitive attitude and the expectation of chemistry in the workgroup. However, individuals with this profile may be constrained by the emotional dependence on the most powerful in voicing out their ideas in the workgroup, leading to only moderate contribution to the team. The following are, therefore, proposed based on the above discussion.

Hypothesis 3: Individuals with the individualistic-high-power distance and individualistic-low-power distance profiles will report higher competitive orientation relative to the other profile configurations.

Hypothesis 4: Individuals with the collectivist-low-power distance and collectivist-highpower distance profiles will report a higher preference for teamwork relative to the other profile configurations.

Hypothesis 5: Individuals with the collectivist-low-power distance and collectivist-highpower distance profiles will report higher team chemistry relative to the other profile configurations.

Hypothesis 6: Individuals with the collectivist-low-power distance profile will contribute significantly to the team relative to all other profile configurations.

Hypothesis 7: Individuals with the collectivist-high-power distance and individualistic-low-power distance profiles will contribute significantly to the team relative to the individualistic-high-power distance profile.

3 Method

3.1 Sample and procedure

The X-Culture platform provided the data for this study. X-Culture is an eight-week virtual international business competition that attracts over 5000 MBA and business students from 150 universities in over 40 countries every semester. Participants are assigned to multi-cultural virtual teams of five to seven people, with each team member from a different country. The teams are asked to develop a full business plan (an international venture presented by real enterprises), with the goals, constraints and commitments laid out at the beginning of the program. The teams have a well-defined, measurable mandate and must conduct business long-distance, face internal cultural differences, and operate in different time zones. The total sample used in this study comprised 11,058 individuals from 157 countries in seven semesters (see Appendix I for countries). Master's students comprised about 40% of the sample, while the rest were undergraduate business students. The gender composition of the sample was 41.1% male and 44.9% female (14% did not report). The average age of the sample was about 23 years. The response rate ranged between 92% and 96%, depending on the survey. Only data from the participants who completed every survey were included in the analysis (6.1% of the cases were dropped due to missing data).

3.2 Measures

The collectivism (individualism), power distance, competitive (achievement) orientation and teamwork preference constructs were measured with individual level items developed by Yoo et al. (2011[AQ2]). All items were measured with a response option of 5 (strongly agree) to 1 (strongly disagree). Collectivism was measured with four items; a high score indicates collectivism, and a low-score indicates individualism ('Individuals should give up their personal goals to serve the interests of the group', 'Group loyalty should be encouraged even if individual goals suffer', 'Group success is more important than individual success', 'Group welfare is more important than individual rewards'). Power distance was also measured using four items, with a high-score indicating high-power distance ('Managers should make most decisions without consulting subordinates', 'Workers should not show disagreement with management decisions', 'In work-related matters, managers have a right to expect obedience from their subordinates', 'Workers should obey their managers without question'). Competitive (achievement) orientation was measured with four items ('Doing your best is not enough; it is important to win', 'I feel that winning is important in both work and games', 'I am not happy when others perform better than I do', 'Winning is everything'). Teamwork preference was measured with three items (e.g., 'I enjoy working with others more than working alone', 'Individuals perform better when they work in teams than when they work alone', 'I prefer to work in teams rather than alone').

Team chemistry (a proxy for team cohesion), was measured with self-report on how frequently the team members interacted at a more personal, friendly level, or how intimate was the team climate. The question read, "How often did you discuss with your teammates matters that

were not related to the project, such as weather, hobbies, friends, movies, and the like?” The answer options were 1=Never, 2= Rarely, very briefly in one or two conversations only, 3= Occasionally, in some conversations, 4=Regularly, in most conversations, and 5=Most of the time, we would also talk about things that are not related to the project. Single-item measures generally lack reliability but are acceptable if the question refers to quantifiable characteristics or occurrence frequencies (e.g., there is no need to ask more than one question to inquire about one’s age or how frequently the person goes to the gym). While this measure may be an imperfect proxy for the interpersonal form of team cohesion (Zaccaro, 1991), it does indicate how positive and personal was the team climate, and how close were the relationships among the team members. To avoid confusion, we will refer to this measure as team chemistry in this manuscript, but we wanted to highlight that this item was only an imperfect proxy for the team cohesion construct.

Overall contribution to the team was measured with three facets of contribution: effort (effort & helpfulness on the project), ideas (intellectual contribution & quality of ideas), and leadership (leadership & help with coordination). Each member was peer-rated on each facet by teammates (multiple raters) at the end of the project based on the response rate of 1 (poor) to 5 (excellent). The average score for each facet by the multiple raters was computed. The computed score for each facet was added to form the cumulative overall contribution score. Exploratory factor analysis of the multi-item constructs revealed five clearly distinct latent constructs (collectivism, power distance, competition, teamwork preference and contribution) with factor loadings ranging between 0.54 and 0.97, explaining 67.75% of the variance. The Cronbach’s alphas were all above the recommended threshold of 0.70, indicating acceptable internal consistency of the constructs.

4 Results

4.1 Descriptive statistics

Reported in Table 3 are the overall sample means, correlations, and Cronbach alphas of the study constructs. The means of the key constructs suggest that the respondents show moderately high-psychological collectivism ($m = 3.61$, maximum=5) and a moderate power distance ($m=2.53$, maximum=5). These are not entirely surprising given the sample composition of multi-cultural respondents. The mean scores for teamwork preference ($m=3.6$, maximum=5) and team contribution ($m=3.8$, maximum=5) were also moderately high, while competitive (achievement) orientation was low ($m=2.0$, maximum=5). The mean score for team chemistry was also moderate ($m=2.0$, maximum=4), suggesting moderate cohesion in the teams.

Concerning the zero-order correlations, most of the constructs are correlated; the collectivism construct is positively correlated with power distance, teamwork preference and team chemistry. However, it is worth noting that the correlation between the collectivist and competitive orientation ($r = 0.14$) is positive, and the correlation with the contribution to the team effort ($r = -0.04$) is negative. Correlations alone are not very informative and should be interpreted with caution, but they still provide some useful information. However, we used more sophisticated tests for the substantive effects. For now, we will note that these outcomes are possible in an individual-level cross-cultural study (Jackson et al., 2006) with a sample of multi-cultural respondents.

Table 3 Means, standard deviations, reliability and correlations among the study constructs

<i>Variables</i>	<i>Mean</i>	<i>SD</i>	1	2	3	4	5	6
1. Collectivism (Individualism)	3.61	0.78	.75					
2. Power distance	2.53	0.82	.17**	.72				
3. Achievement orientation	2.99	0.97	.14**	.33**	.80			
4. Teamwork preference	3.46	0.82	.34**	.12**	.17**	.78		
5. Team chemistry (cohesion)	.09	1.07	.02**	.03**	.04**	.16**	na	
6. Overall contribution	3.97	0.81	-.04**	-.10**	-.08**	.00	.02**	.95

Notes: *p < .05, **p < .01 (N = 11,058). Cronbach's alphas are reported on the diagonal.

4.2 Cluster outcome

The k-means cluster analytic procedure was used. The algorithm of this procedure groups cases to maximise similarity within clusters and dissimilarity among cluster centres (Somers, 2009). This procedure was adopted because there was clear theorising of four clusters based on the operationalisation of the cultural constructs: collectivism versus individualism and low- vs. high-power distance. Following prior research (Somers, 2009) the four-cluster solution was derived using the scale mid-point score (2.50 on a five-point scale) as the cut-off point to determine the low and high categorisation on both cultural constructs. This is in line with the operationalisation of the cultural constructs (Hofstede, 2001). The four-cluster solution reported in Table 4 shows clear, distinct profiles with no overlaps. However, to ensure that the four-cluster solution was the best fit, a nine-cluster solution was examined, assuming a low, medium, and high categorisation (at 1SD above or below the median). The outcome showed multiple overlapping profiles with unequal profile sizes; the ratio of the largest to the smaller group was 6.7 compared to 2.1 for the four clusters. This confirms the four-cluster solution as theorised.

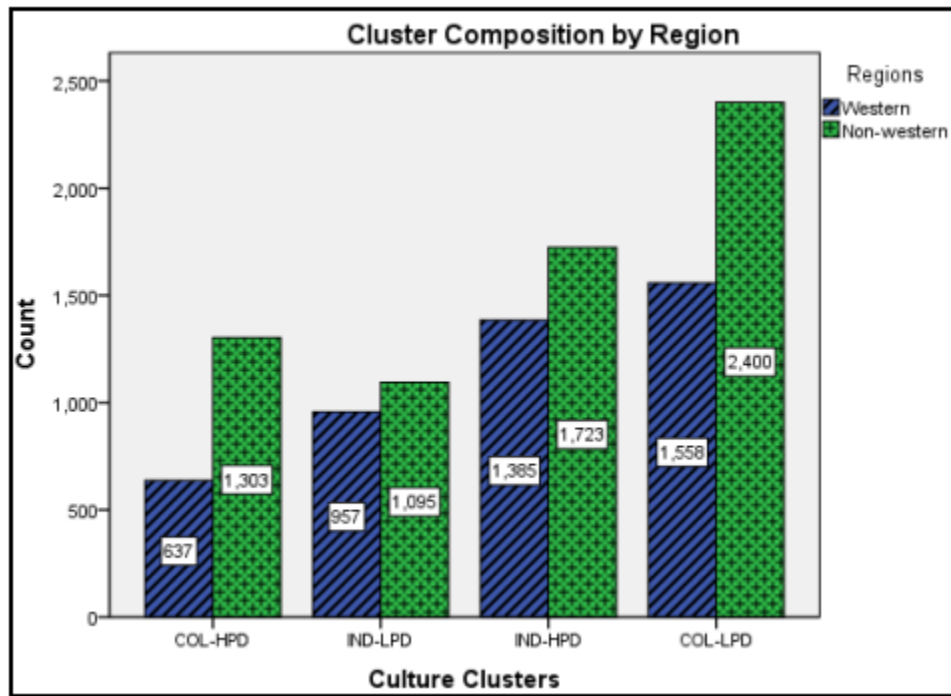
Table 4 Outcome of culture-based profile analysis

Emerged cultural profiles	Psychological collectivism/ Individualism	Psychological power distance	N
1 Collectivist-HPD (team-involved)	4.43	3.70	1.940
2 Individualist LPD (team-allied)	2.37	1.89	2.052
3 Individualist -HPD (team-trapped)	2.45	2.96	3.108
4 Collectivist-LPD (team-devoted)	4.14	2.04	3.958
Total sample			11.058

Notes: HPD=high-power distance, LPD=low-power distance.

Cross-tabulation of the profile was computed with the respondent's region of birth (western vs. non-western) to test the first two hypotheses. The finding reported in Figure 1 shows a mixed outcome regarding the prevalence of the profiles. The nonwestern respondents seem to dominate most of the profiles. The COL-HPD and the IND-LPD profiles are prevalent among the non-western respondents, but more so for the COL-HPD, providing partial support for hypothesis 1. Hypothesis 2 is partially supported, as the IND-HPD and COL-LPD profiles are present in both settings, although the non-western respondents again dominate both profile membership. However, the membership of these sub-cultural profiles is demonstrably higher than the membership of the dominant value profiles. Therefore, the outcome contrasts with the macro-level

assumptions but is not entirely surprising for a micro-level test where sub-cultures with unique values are expected.



4.3 Profile means tests

Reported in Tables 5 and 6 are the comparisons of the profile mean scores on the key constructs. The analyses show that all the MANOVA models for competitive orientation, teamwork preference, team chemistry and contribution to the team were significant, and the Games-Howell posthoc test was used to perform the multiple comparisons since group variances were unequal based on the Levene's test. Also, the models involving the facets of team contribution (effort, ideas, leadership) reported in Table 6 were all significant. Finally, the results of the mean comparisons were triangulated with semester level sub-samples, and the results are reported in Appendixes II and III. The outcome of the multiple comparisons across the total sample and over the semester sub-samples and the hypotheses tests are summarised in Table 7.

Hypothesis 3 states that the individualistic-low-power distance and individualistic-highpower distance profiles will exhibit higher competitive orientations than other profiles. As shown in Table 7, only the individualistic-high-power distance (IND-HPD) profile had a significantly higher mean score than the collectivist-low-power distance (COL-LPD) across the overall sample and all seven semesters (sub-samples). Contrary to our expectation of competitive orientation, the collectivist-high-power distance (COLHPD) profile reports the highest mean score among all the profiles. Competitive attitudes may not be confined to the pre-determined national level cultural grouping, and it is possible to be competitive and have an affinity to group processes, especially in this student-context with competition for the best team. Hypothesis 4 was supported across the overall sample and in all seven-semester sub-samples as there were significant differences among the profiles on teamwork preference. The means for the collectivist based profiles were higher than the mean scores for the individualist-based profiles. Hypothesis 5 is

Table 5 Comparing profiles mean scores on orientation and contributions to the team (overall sample)

Variables	Collectivist-HPD (1)	Individualist-LPD (2)	Individualist-HPD (3)	Collectivist-LPD (4)	Post-hoc (Games-Howell)
<i>Achievement/Competition</i>					
F (3, 9568) = 264.66**	3.56	2.74	3.06	2.87	1 > 2, 4*
Partial $n^2 = 0.07$	(0.96)	(1.00)	(0.77)	(0.99)	3 > 2, 4*
<i>Teamwork preference</i>					
F (3, 9568) = 418.84**	3.97	3.10	3.23	3.65	1 > 2, 3, 4*
Partial $n^2 = 0.11$	(0.83)	(0.91)	(0.74)	(0.89)	4 > 2, 3*
<i>Team chemistry</i>					
F (3, 9568) = 8.84**	2.05	1.94	1.97	1.88	1 > 2, 4*
Partial $n^2 = 0.03$	(1.15)	(1.08)	(1.08)	(1.08)	3 > 4*
<i>Overall contribution</i>					
F (3, 9568) = 54.87**	3.79	4.09	3.89	4.02	2, 4 > 1*
Partial $n^2 = 0.07$	(0.88)	(0.73)	(0.83)	(0.77)	2 > 3, 4*
					4 > 3*

Notes: * $p < .05$ ** $p < .01$. Wilks's $\lambda = 0.814$; $F = 170.77$, $p = 0.00$. Partial Eta Square = .066.

Table 6 Comparing profiles mean scores on facets of team contribution (overall sample)

Variables	Collectivist-HPD (1)	Individualist-LPD (2)	Individualist-HPD (3)	Collectivist-LPD (4)	Post-hoc (Games-Howell)
<i>Effort</i>					
F (3, 10186) = 59.34**	3.93	4.24	4.05	4.17	1 > 2, 4*
Partial $n^2 = 0.07$	(0.89)	(0.71)	(0.83)	(0.74)	3 > 2, 4*
<i>Contributing ideas</i>					
F (3, 10186) = 52.60**	3.77	4.08	3.88	4.01	2, 4 > 1*
Partial $n^2 = 0.07$	(0.96)	(0.77)	(0.88)	(0.83)	2 > 3, 4*
					4 > 3*
<i>Leadership</i>					
F (3, 10186) = 62.71**	3.79	4.09	3.89	4.02	2, 4 > 1*
Partial $n^2 = .018$ $n^2 = 0.07$	(0.88)	(0.73)	(0.83)	(0.77)	2 > 3, 4*
					4 > 3*

Notes: * $p < .05$ ** $p < .01$. Wilks's $\lambda = 0.981$; $F = 22.178$, $p = 0.000$. Partial Eta Square = .006.

partially supported across the overall sample and in four out of seven sub-samples. The COL-HPD profile reported higher cohesion (chemistry) in the team than the IND-LPD profile. Hypotheses 6 and 7 are partially supported across the overall sample, and some of the sub-samples; IND-LPD and COL-LPD profiles are the highest contributors, but IND-LPD contributes the most to the team. The COL-LPD profile makes a significantly greater contribution to the team than the COL-HPD and IND-HPD profiles, and the IND-LPD also makes greater contributions than the IND-HPD profile. The results for hypotheses 6 and 7 were also supported when examined among the facets of team contribution (see Table 6) and summarised in Table 7.

Table 7 Summary of results and hypotheses test

<i>Hypotheses</i>	<i>Results*</i>	<i>Support</i>
H1: COL-HPD & IND-LPD are prevalent among non-western & western respondents, respectively.	Non-west respondents dominate COL-LPD & IND-LPD	Partially supported
H2: IND-HPD & COL-LPD are prevalent among respondents from both east-west settings.	IND-HPD & COL-LPD present in western and nonwestern settings.	Partially supported
H3: IND-HPD, IND-LPD profiles report higher competition orientation.	COL-HPD > IND-LPD, COL-LPD IND-HPD > IND-LPD, COL-LPD	Partial support: For overall sample; and in 7 out of 7 semesters: 2014-2A, 2014-2B, 2015-1A, 2015-1B, 2015-2B, 2016-1B, 2017-2B
H4: COL-LPD & COL-HPD profiles report greater preference for teamwork.	COL-HPD > IND-LPD, IND-HPD, COL-LPD COL-LPD > IND-LPD, IND-HPD	Supported: For total sample; and in 7 out of 7 semesters: 2014-2A, 2014-2B, 2015-1A, 2015-1B, 2015-2B, 2016-1B, 2017-2B
H5: COL-LPD & COL-HPD profiles report greater team chemistry	COL-HPD > IND-LPD & COL-LPD IND-HPD > COL-LPD	Partial support: For overall sample; and in 4 out of 7 semesters: 2014-2A, 2014-2B, 2015-1B, 2016-1B
H6: COL-LPD profile makes the greater contribution to the team relative to all others.	COL-LPD, IND-LPD, IND-HPD > COL-HPD COL-LPD > IND-HPD	Partial support: For overall sample; and in 5 out of 7 semesters: 2014-2A, 2014-2B, 2015-1A, 2015-2B, 2016-1B
H7: COL-HPD & IND-LPD profiles make greater contribution to relative to IND-HPD	IND-LPD > IND-HPD, COL-LPD COL-LPD > IND-HPD	Partial support: For overall sample; and in 3 out of 7 semesters (2014-2B, 2015-2B, 2016-1B)
<i>Facets of contribution</i>		
Effort (H6 & H7)	COL-LPD, IND-LPD, IND-HPD > COL-HPD COL-LPD > IND-HPD IND-LPD > IND-HPD, COL-LPD	Partial support: For overall sample; and in 6 out of 7 semesters (2014-2A, 2014-2B, 2015-1A, 2015-1B, 2016-1B, 2017-2B)
Ideas (H6 & H7)	COL-LPD, IND-LPD, IND-HPD > COL-HPD COL-LPD > IND-HPD IND-LPD > IND-HPD, COL-LPD	Partial support: For overall sample; and in 6 out of 7 semesters (2014-2A, 2014-2B, 2015-1A, 2015-1B, 2016-1B, 2017-2B)
Leadership (H6 & H7)	COL-LPD, IND-LPD, IND-HPD > COL-HPD COL-LPD > IND-HPD IND-LPD > IND-HPD, COL-LPD	Partial support: For overall sample; and in 6 out of 7 semesters (2014-2A, 2014-2B, 2015-1A, 2015-1B, 2016-1B, 2017-2B)

Notes: * Supported hypotheses are bolded; COL = Collectivist, IND = Individualist, HPD = High-power distance, LPD = Low-power distance.

5 Implications and conclusion

5.1 Summary and theoretical implications

This study examined micro-level cultural profiles using two widely studied dimensions of culture; collectivism (individualism) and power distance. The four theorised cultural profiles emerged; these include the dominant value profiles (COL-HPD and IND-LPD), as well as the non-dominant value profiles (COL-LPD and IND-HPD). These are distinct from prior research that employed the Hofstede dimensions at the individual level (e.g., Richter et al., 2016). However, the outcome with respect to the non-dominant value profiles aligns with research showing the existence of sub-cultural profiles in society (Cooper et al., 2020; Richter et al., 2016; Venaik and Midgley, 2015). The COL-LPD and IND-HPD, both sub-cultural profiles, were the predominant clusters in terms of membership.

However, the outcome with respect to the prevalence of the profiles in the east-west settings partly meets our expectations and theory. Although both collectivist-based profiles (COL-HPD and COL-LPD) were prevalent among the non-western respondents, the COL-LPD sub-cultural profile was the most prevalent, which deviates from our theorised effect and the macro-level correlation (Hofstede, 2001). Also, the individualistic-based profiles (IND-LPD and IND-HPD) were not prevalent among the western respondents. The overall outcome supports prior research outcomes and the assertion that similar sub-culture traits are present within the macro-cultural frame across countries (Jackson et al., 2006; Richter et al., 2016; Venaik and Midgley, 2015). Our sample of younger multi-cultural students' population from multiple countries may explain this outcome. Prior research (e.g., Tung et al., 2008) found cultural differences between younger and older generations, and Fang (2006) asserted that culture possesses a paradoxical attribute and that both new and old values can coexist concurrently in a society.

The outcome of the profile associations with teamwork orientations and contribution shows some significant differences among the profiles. The profile differences in competitive orientations and team chemistry (interpersonal cohesion) were mixed and did not completely support our theorised effect. For instance, an individualist-based profile reported high chemistry, while a collectivist-based profile also reported high competitive orientation. The multi-cultural composition of the teams could have influenced this outcome. Cultural diversity is posited to have both negative and positive effects on team processes and outcomes. It can lower group cohesion because of intercultural problems and mistrust, and these are likely to increase among multi-cultural teams (Bouncken et al., 2016). The outcome regarding preference for teamwork was generally in line with the theorised effect; the collectivist-based profiles reported high levels of teamwork preference.

Finally, on contributions to teamwork, a mixed outcome was observed, which does not align completely with the theorised effect. The collectivist-low-power distance and individualist-low-power distance profiles contributed the most to the team. The individualist-low-power distance profile, which may not be restricted to any setting, contributed the most to the team than the collectivist-high-power distance profile. These findings were replicated when examined among the three facets of team contribution: effort, ideas and leadership. This implies that low-power distance orientation is also an important determinant of member contributions to a team (Shin and Zhou, 2007; Yuan and Zhou, 2015). This stands in contrast to the assumption that non-western cultures, which tend to be high-power distance orientated, readily have an affinity for the group and will contribute the most to a team. The person-centred approach reveals that the high-power

distance context could be detrimental to a group or team processes, as noted in the literature (e.g., Bouncken et al., 2016).

5.2 Limitations and future research

Like any study, ours is not without limitations. First, it is based on Hofstede's framework, which, despite being the most popular in cross-cultural research, has been extensively criticised for a host of limitations (Baskerville, 2003; McSweeney, 2002; Spector et al., 2001). Any limitations of Hofstede's model would extend into the work based on this model, ours notwithstanding.

Next, the fact that our study was based on a student sample poses a threat to the validity of our findings. Indeed, the somewhat younger students may not be ideal representatives of the population at large. However, the reliability and generalisability of a study depend not only on the representativeness of the sample but also on the sample size. A sample that is demographically more representative of the population at large would have certainly been preferred. However, obtaining a large sample like this is often prohibitively expensive. By using a student project as a data collection site for this study, we traded the sample size for sample representativeness. The threat to the generalizability of the findings due to the younger participants was at least partially offset by the increased sample size afforded by our choice of the data collection site.

A related limitation of our study is its focus on GVTs. It is uncertain if our findings would generalise to the traditional face-to-face team context. However, while the GVT focus of our study limits the generalisability of our findings, the fact of the matter is that GVTs are quickly becoming "traditional" teams. For example, a recent survey of employees from 90 countries found that 89% of white-collar workers at least occasionally complete projects in global virtual teams (Culture Wizard, 2018). This is not surprising in a globalised world where international collaboration online is indispensable in bringing together geographically dispersed colleagues, especially as the COVID-19 pandemic has made telework the norm even in companies with localised operations, further necessitating the use of virtual teams. So, while the GVT context may be different from the face-to-face teams, understanding the relationships in the context of GVTs is no less valuable. Nonetheless, we encourage future researchers to also examine the effects and predictive power of cultural profiles in the context of traditional face-to-face teams.

Lastly, while the present study was based on a large international sample, the data were imperfect in many respects. Some of the constructs (e.g., team cohesion) were represented by imperfect proxies that, while conceptually relevant to the construct in question, could have not fully captured it. Likewise, some of the potentially relevant team-level factors were not captured and included in our model. For example, it is conceivable that team characteristics (team size, team diversity) could moderate the individual-level relationships tested in our study. It was beyond the scope and intent of the present study to test the effects of such group-level factors, but we encourage future researchers to expand their line of inquiry and explore multi-level effects and relationships in the context of cultural profiles.

5.3 Practical implications

Clear differences in profile prevalence, teamwork preference and team contributions were observed in this study, but the outcome with greater implications for managing across settings is the contributions to teamwork because it is the catalyst to overall team performance. For MNEs, the national level cultural categorisations are useful in providing an initial understanding of

societies, but knowledge of the combined effect of culture at the micro-level is needed for decisions on who may perform in a team setting. Thus, managers will be better off understanding which cultural values combine to affect which group behaviours. On the contribution to the team, those with collectivist and lowpower distance and the individualistic and low-power distance orientations will be highteam performers by making greater contributions to the team in terms of their efforts, ideas and leadership. This group of young high-team performers may not be limited to one cultural setting but present in both western and non-western settings. Hence, managers cannot assume that those in collectivist settings will automatically be good team players than those from individualist settings. Other cultural values, like power distance, is also an important determinant of who may be a team player and provides an additional benchmark for managers when determining who to select for a team project. Thus, collectivist or individualist with low-power distance orientation in either western or non-western settings will contribute effort, ideas and leadership in a team.

5.4 Conclusions

This study contributes to the literature by examining the effect of micro-level cultural profiles on teams and aligns with the call to integrate other cultural dimensions that may influence group processes (Yuan and Zhou, 2015). Not surprisingly, the micro-level outcomes defy the assumptions of the predefined categorisation of national cultural settings and the east-west view of cultural differences. Psychological states affect behaviours holistically; hence, cultural values at the individual level will not affect behaviours independent of each other. We show the interplay of collectivism and power distance values and the importance of understanding sub-national orientations for behavioural and performance management in teams.

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