

Turnaround maintenance workers cultural values and conflict management style preference: Moderating role of temperament

Musah, Adiza. Alhassan, Zulkipli, Ghazali, Ahmad, Nizam Shahrul Isha.

Department of Management and Humanities

*Universiti Teknologi PETRONAS, 31750 Bandar Seri Iskandar Tronoh
Perak, Malaysia.*

Abstract. The general argument is that individuals choose those conflict styles that fit their cultural values. The concept of culture fit elucidates why organizational practices are effective with regards to employees work-related performance if these practices fit the cultural values of the workforce. Mismatch of organizational practices with employees' cultural values may result in dissatisfaction and demotivation to perform well. This present study determined the link between plant turnaround maintenance (TAM) workers culture values, and their preference for a specific method for managing conflict. The research methodology is based on questionnaire survey focusing on plant TAM employees during execution phase. Data was gathered from TAM workers in 13 petrochemical plants in east and west Malaysia. Stated hypotheses were tested using SmartPLS software. Results shows all five cultural dimensions positively predicted integrating, obliging, compromising and avoiding, and negatively predicted dominating conflict management styles. The study concludes that employees will generally favor conflict styles that are consistent with their cultural values. Compared to previous findings, the current results revealed both culture and temperament as predictors of conflict management styles, providing a comprehensive evidence of the predictors of conflict management style preference.

1. Introduction

Current research is advocating for empirical evidence in to cultural differences and effects of culture in projects (Kivrak, Ross and Arslan, 2008; Mahalingam et al. 2005; Liu and Fellows,1999), such as cultural diversity in management practices (Pheng and Alfelor, 2000), conflict resolution (Chan and Suen, 2005). According to Shore and Cross (2005) although cultures in management is extensively acknowledged, there is dearth of studies focusing on culture's role in project management decision making.

Furthermore, there is no evidence of indepth research focusing on the effects of culture on conflict management. A review of 800 academic journals and 100 books by Henrie and Sousa-Poza (2005) revealed no clear consensus on the definition and effects of culture within project management. Additionally, most literature on project management emphasizes on the technical aspect and neglect the cultural dimension (Kloppenborg and Opfer, 2000; Henrie and Sousa-Poza, 2005). Henrie and Sousa-Poza, (2005) posit that culture can play both functional and dysfunctional outcome in project due to diversity of the workforce in general and cultural values of the individual employees in shaping core decision making within teams.

The study addresses two shortcomings of the literature that uses cultural value dimensions, to explain individuals' preferences for conflict handling styles. Primarily, previous studies on culture examined single cultural dimension, neglecting the joint importance of all dimensions. (Littrell, 2012; Gunkel et al., 2016). Thus, little is known about the relative importance of different cultural value dimensions in affecting preferences for different conflict handling styles especially in a temporary work environment. Furthermore, most of prior studies did not directly measure cultural dimensions. Instead they have often used cultural dimension scores by Hofstede (2001) to assign cultural values to individuals, this method poses problems as it equates national culture of a country and individual cultural orientation, without directly evaluating individual cultural orientations (Brewer and Venaik, 2014; Gunkel et al., 2016).

*Corresponding author: deetutty@gmail.com

Addressing the gaps in the literature could lead to full conceptualization of cultural dimensions relevant to conflict style, thereby contributing to theoretical development and empirical testing, in responds to call for examining definite cultural values (Morris et al., 1998; Merkin, Taras, and Steel, 2014; Gunkel et al., 2016; Musah et al., 2017a; Musah et al., 2017b) that influence individuals' preferences for conflict handling styles. Subsequently, investigating the mechanism underlining the foundation of individual preference for specific conflict management styles and the fusion of the two research streams by providing a holistic and broad view on how cultural dimensions influence conflict management styles through temperament—an understudied research area (Musah *et al.*, 2015). Therefore, the study aims to assess the relationship of work culture on the conflict management styles of people in plant TAM environment in Malaysia. There is dearth of literature addressing variables predicting conflict management styles especially in plant TAM. Specifically, the objectives of the study are:

1. To examine the influence of culture on conflict management styles.
2. To examine whether temperament moderates the relationship between culture and conflict management styles.

2. Literature review

The notion of culture has been widely used in study of nations and societies. More importantly, the study of culture at the individual level is crucial and pertinent (Kamakura and Mazzon, 1991; Kamakura and Novak, 1992) in the work settings. Therefore, there is a valid necessity to bridge that gap. While Hofstede assessed his instrument at the individual level, data was analyzed at the national level (Tsai, 2011). This should not be interpreted as country and culture as the same because national boundaries do not necessarily overlap with monocultural groups (Dawar and Parker 1994; Roth 1995). Using country level overviews to explain individual behavior is biological error as national relationships are construed as applicable to individuals (Yoo and Donthu 2000). Blindly looking at national culture and using that to individuals may not work. Organizational leaders and managers should realize that equating the stereotypical culture of a country directly to all citizens of the country would be misleading (Yoo *et al.*, 2011). For instance, although culture is conceptualized at the national level (example collectivism), whether a person ascribes such cultural tendencies consistent with the country-level culture must be examined (example, as the individual exhibit collectivistic tendencies?) (Yoo *et al.*, 2011). This assertion is more relevant when a country consists of a heterogeneous population with multicultural groups.

In view of the above, all Yoo *et al.*, (2011) five culture dimensions were adopted as it has both an empirical base and theoretical rationale supported by a classic and fundamental review about culture at the individual level.

- *Power Distance* (PDI) depicts distribution of power in terms of centralization and decentralization. Hofstede's Power Distance dimension should be considered in the organization of a project. High PDI adhere to hierarchical structures whilst low PDI are such strictly structured. Such work teams' behavior towards authority influences conflict outcomes.
- *Individualism versus collectivism* (IDV) describes the inclination to work alone or in a group. Individualism-collectivism is a commonly used dimension in cross-cultural research (Hofstede, 1980; Hui, 1988; Kluckhohn and Strodtbeck, 1961; Ting-Toomey, 1988; Triandis, 1988). People who has individualistic tendencies place emphasizes on their own needs overs those of the groups. On the other hand, collectivistic individuals value group goals over those of individuals.
- *Masculinity versus femininity* (IMAS) is about whether an individual is task or relationship oriented. Low IMAS individuals value relationship building and less formal work relationship as compared to high IMAS.
- *Uncertainty Avoidance* (UAI) depicts dealing with risks and uncertainties, thus, whether they have intrinsic or extrinsic control. Uncertainty avoidance evaluates the degree to which individuals express discomfort and vulnerable by ambiguity and therefore they distance themselves from such circumstances. Individuals with high UAI value compromise and instructions and have no patience with aberrant views and people. Contrary, low UAI individuals depend less on directions and are more risk takers.
- *Long-term* (LTO) direction and guidance in the *short term* (STO) - long-term/short-term orientation describes planning for the future. Long-term/short term measures the progress and growth of assert.

Culture and Conflict Management Style

Project management literature is replete with information on the technical aspect while the cultural aspect mostly ignored (Kloppenborg and Opfer, 2000; Henrie and Sousa-Poza, 2005) even though evidence shows culture explains preferences that forms the basis for behavior management in decision making among project workers (Shore and Cross, 2005; Müller, Spang and Ozcan, 2007) as confirmed by Müller *et al.* (2007) who conducted the research on cultural differences in decision making in a mixed-culture project teams. A study by Tsai and Chi (2009) revealed that high PDI, high UAI and low IMAS contributed to the propensity to adopt avoiding and obliging conflict styles in varied conflict situation during task performance. Ralston *et al.*, (1993) have also indicated that China were more like Hong Kong than to US in their study on the respective cultural dimensions (Tsai, 2011). In general, UK and US achieved similar profiles where they are likely to be classified with lower power distance, individualistic, and low uncertainty avoidance while Chinese appear likely to score high on power distance, collectivism, uncertainty avoidance and long-term orientation (Smith *et al.*, 1996). The results from these studies have provided support to generalize that collectivist cultures tend to use non-confrontational strategies whereas individualistic cultures are more likely to be confrontational (Ting-Toomey, 1988, 1999; Ting-Toomey *et al.*, 2000).

However, research focusing on measuring culture at the individual level in conflict in plant TAM project teams is still scarce. Consequently, it is pertinent for TAM management to understand cultural values that can affect the TAM activities in general and conflict management in particular because culture can provide avenues in providing basis to explore the complexities of TAM event management process. Therefore, implantation of a framework will enable project workers to advance a functional means of understanding and handling cultural diversity that is expected in TAM events (Shore and Cross, 2004). Moreover, previous studies have revealed many problems that come about due to cultural differences such as communication (Müller *et al.*, 2007), behavior, problem solving and conflict management (Trompenarrs, 2004) when individuals with varied cultural values are confined within the same work space. As TAM expands and becomes more globalized, employees are not only large but also with diverse expertise requiring managers to understand different work cultures' impact on work ethics and how event is conducted differently especially for their interrelated and interdependent activities being performed simultaneously.

Conceptual Framework and Hypotheses Development

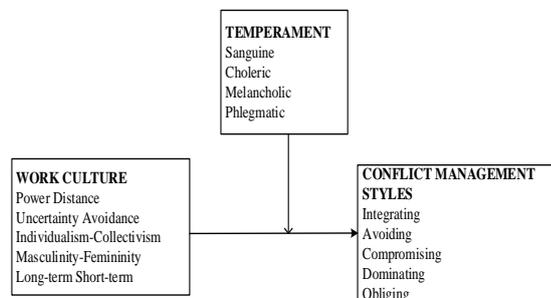


Figure 1: Conceptual Framework

Based on the hypothesis that individual preferences in general (Bowles, 1998) and individual conflict management style in particular (Kirkbride, Tang, and Westwood, 1991; Ting-Toomey *et al.*, 1991; Wang, Lin, Chan, and Shi, 2005) are affected by culture, the study proposes hypotheses that associate cultural dimensions to the notion that individuals prefer some conflict styles over others. The general argument is that people chose conflict management styles that are consistent with their cultural values. The notion of culture fit is used to describe why management practices are effective when practices are consistent with cultural values of the workers (Lachman, Nedd, and Hinings, 1994; Newman and Nollen, 1996). When organizational practices are not consistent with employees' cultural values, the employees are displeased and disappointed and as such demotivated to perform efficiently (Newman and Nollen, 1996). The study posits that individual TAM workers will prefer conflict styles that are consistent with their cultural values. Thus, based on the theoretical arguments discussed above, it is proposed:

- Hypothesis 1. Collectivism is positively related to (a) Integrating, (b) Avoiding, (c) Obliging (d) Compromising, and negatively related to (e) Dominating conflict handling styles.

- Hypothesis 2: Uncertainty avoidance is positively related to (a) Integrating, (b) Avoiding, (c) Obliging (d) Compromising, and negatively related to (e) Dominating conflict handling styles.
- Hypothesis 3: Long-term orientation is positively related to (a) Integrating, (b) Obliging, (c) Compromising, and negatively related to (d) Avoiding and (e) Dominating conflict management styles.
- Hypothesis 4: Power distance is positively related to (a) Avoiding (b) Dominating, and negatively related to (c) Integrating, (d) Obliging (e) Compromising conflict management styles.
- Hypothesis 5: Masculinity is negatively related to (a) Integrating, (b) Avoiding, (c) Obliging, and (d) Compromising and is positively related to (e) Dominating conflict management styles.

Moderating role of temperament

Few studies have used interpersonal tasks to measure temperament (Colburn *et al.*, 2012 ; Jezewska *et al.*, 2013; Oniszezenko *et al.*, 2014) and culture in a work setting especially in temporary work environment (Musah *et al.*, 2016) although a lot of interactions occur in work environment (Mesquita and Karasawa, 2002; Tsai, 2006). This is because cultural values and beliefs about emotions may be particularly relevant during interactions with other people (Tsai and Levenson, 1997; Tsai, 2006). Secondly, it is unclear from these studies whether observed differences are due to cultural (Tsai *et al.*, 2007) or temperamental factors (Porter *et al.*, 2007). Since temperament interacts with experience to shape behavior, the behavior of individuals with the same temperament may differ considerably. Moreover, the behavioral mien of temperament may depend on the situation (Tsai, 2006) whereas cultural factors refer to shared environmental influences. Based on the above justification from previous studies, the following hypothesis below is proposed:

- Hypothesis 6: Temperament will moderate the relationship between culture and conflict management styles.

3. Methodology

The survey used, soliciting both quantitative responses. The purpose of the quantitative item was to gather quantitative data about the culture dimensions and conflict management preferences.

3.1. Instrument

- Cultural Dimensions: Culture Value Scale (CVSCALE):** The CVSCALE was used for measuring culture at individual level. Based on Hofstede's individual work-related values, Yoo, Donthu and Lenartowicz (2011) developed culture value scale (CVSCALE) tool for measuring Hofstede values scales at individual level. Following the recommendations in the literature (Gunkel *et al.*, 2016; Kirkman *et al.*, 2006; Littrell, 2012; Tsui, Nifadkar, and Ou, 2007), the study examined the effects of all five dimensions.
- Conflict Management Styles:** The Rahim Organizational Conflict Inventory II (ROCI-II) has a total of 28 items on a five (5) point Likert scale measuring the five conflict management styles: avoiding, integrating, compromising, dominating, and obliging. tested for social desirability to make sure that respondents were not answering a certain way to align with socially acceptable answers. Further, Rahim (2001) reported that the ROCI-II dealt with social desirability response bias attempting to ensure all items were worded in a way that respondents 'would answer more accurately aligned with their true behaviors rather than what the respondents perceived as most socially acceptable. Conflict management styles was measured by Rahim Organization Conflict Inventory (ROCI-II).
- Temperament:** The four-temperament theory appears, from a psychometric perspective, to be one of the soundest theories of personality in existence. The Temperament Inventory (TI) invented by Cruise, Blichington and Futcher, (1980) was adapted for this study, this is because factor analysis of the inventory (Sanguine, Choleric, Melancholic, and Phlegmatic), and validity studies yielded

statistically and practically significant coefficients (Musah et al., 2017; Dickson et al, 1986; Cruise et al, 1980).

3.2. Data Analyses

Data collected in this study were analyzed using both Statistical Package for Social Science (SPSS version 22) and Partial Least Squares-Structural Equation Modeling (Smart PLS 3.6). Basically, SPSS was used for the preliminary data analysis such as detection and treatment of missing data, outliers and linearity assumption of multivariate analysis. The test of hypotheses was assessed by the PLS-SEM Software based on the reasons that it offers several advantages in predicting significant relationships under small sample size, types of variables used, model complexity and places minimum requirement on data normality (Hair et al, 2014). The bootstrap re-sampling procedure (5000 sample) was used to generate the standard errors and the t-values, which enable the beta coefficient to be made statistically significant.

4. RESULTS

Data were collected from TAM workers from petrochemical companies in the East and West of Malaysia. These plants conducted turnaround during the duration of data collection. Since, the workforce of TAM is temporary, respondents could be accessed and assessed only during the event hence, the plant selection.

Uncertainty avoidance scored the most among the respondents, followed by individualism, long-term orientation, masculinity and low power distance. Respondents had preference for integrating compromising, obliging, avoiding and dominating. There is significant low to moderate and positive relationship between conflict management styles and all the dimensions of work culture, underscoring the vital role of culture in conflict handling preferences.

Table 1: Hypotheses Results

Expected relationship	B	T-Value	Hypothesis	Decision
IC→OB (+)	0.363	8.160***	H1	Supported
IC→DO (-)	-0.277	6.662***		
IC→CO (+)	0.310	6.891**		
IC→IN (+)	0.328	6.984***		
IC→AV (+)	0.320	7.543***		
UA→AV (+)	0.285	6.308***	H2	Supported
UA→DO (-)	-0.295	6.080***		
UA→IN (+)	0.301	6.303***		
UA→CO (+)	0.199	3.789***		
UA→OB (+)	0.210	4.238***		
LT→CO (-)	0.373	7.581***	H3	Supported
LT→OB (+)	0.479	13.151***		
LT→IN (+)	0.479	11.446***		
LT→AV (+)	0.409	8.676***		
LT→DO (+)	-0.332	6.497***		
PD→AV (+)	0.372	8.340***	H4	Partially Supported
PD→DO (+)	-0.352	3.072**		
PD→IN (-)	0.190	0.979		
PD→OB (-)	0.306	6.760***		
PD→CO (-)	0.231	3.630***		
MF→IN (-)	0.216	1.917*	H5	Not Supported
MF→OB(+)	0.438	10.521***		
MF→CO(+)	0.253	3.704***		
MF→DO(+)	-0.288	0.982		
MF→AV(+)	0.431	6.281***		

Note $\rho < .001$,***, $\rho < .01$,**, $\rho < .05$ *. IC=individualism-collectivism, UA=uncertainty avoidance, LT=long-term orientation, PD=power distance, MF=masculinity-femininity, AV=avoiding, DO=dominating, IN=integrating, OB=obliging, CO=compromising.

- Hypothesis 1: The results show that collectivism was positively and significantly associated with an integrating style (.328; $p < .01$), avoiding (.320; $p < .01$), obliging (.363; $p < .01$), compromising (.350; $p < .05$) as well as negatively and significantly related to a dominating style (-.277; $p < .01$). These findings provide support for Hypotheses 1-a to e.
- Hypothesis 2: The results show that uncertainty avoidance was positively and significantly associated with an integrating style (.310; $p < .01$), avoiding style (.285; $p < .01$), obliging style (.210; $p < .01$), compromising style (.199; $p < .01$) and negatively related to dominating (-0.285; $p < .01$), providing support for Hypotheses 2-a to 2e.
- Hypothesis 3: The results show that long-term orientation was positively related with an integrating (.479; $p < .01$), obliging (.479; $p < .01$), compromising style (.373; $p < .01$), avoiding (0.409; accessed and assessed only during the event hence, the plant selection. Uncertainty avoidance scored the most among the respondents, followed by individualism, long-term orientation, masculinity and low power distance. Respondents had preference for integrating compromising, obliging, avoiding and dominating. There is significant low to moderate and positive relationship between conflict management styles and all the dimensions of work culture, underscoring the vital role of culture in conflict handling preferences ($p < 0.01$), dominating (-0.332; $p < 0.01$), providing support for Hypotheses 3-a to e.
- Hypothesis 4: The results show that power distance was positively and significantly related with an avoiding style (.372; $p < .01$), compromising (.231; $p < .01$), obliging (.306; $p < .01$), and negatively related to dominating style (-.315; $p < .01$). Therefore, Hypotheses 1d-I is supported. Power distance was not significantly associated with integrating ($p > 0.05$). Thus, Hypotheses 4- b, c, d, and e are not supported.
- Hypothesis 5: Results revealed that integrating (.216; $p < 0.05$), avoiding style (.431; $p < .01$), compromising (.253; $p < .01$), and obliging (.438; $p < .01$). Masculinity was not statistically related to dominating style ($p > .05$). All five hypotheses are not supported.

In support of hypothesis 6, it was found that the relationships between culture and temperament and conflict management styles were significant and positive (Beta = .486, $p < .001$, Beta = .239, $p < .001$, and Beta = .133, $p < .05$, respectively). The results confirm the influence of culture on conflict styles accounted for 33% of variance. This is in the expected direction of the conceptual model, therefore, hypothesis 6 is supported.

Table 2: hypothesis 6 results

Expected relationship	B	T-Value	H6	Decision	Effect size f2
CUL→CMS	0.486	10.871***		supported	0.300
TEM→CMS	0.239	4.527***			0.074
CUL*TEM→CMS	0.133	2.413*			0.028

Note $p < .001$,***, $p < .01$,**, $p < .05$,*. CUL=culture, CMS=conflict management styles, TEM=temperament,

To determine the direction of the interaction, a graphical display was created (Cohen *et al.* 2003; Frazier *et al.*, 2004). As shown in Figure 2, when temperament is low, work culture is high. Hence the relationship between conflict management style and culture increases when temperament is low. When temperament is high, work culture is low. Hence the relationship between conflict management style and work culture decreases when temperament is high.



Figure 2: Interaction effects of culture and temperament on conflict management styles

5. Discussion

The results revealed that most of the respondents subscribed to high uncertainty avoidance, indicating that workers like to avoid taking risks in the fulfilment of their duties. Due to the nature of the industry and plant technology used, errors could lead to catastrophe and probability of fatality. Another reason is because of safety measures, training and briefing offered before TAM, and the general behavior of TAM workers based on technical work culture. As such taking risks may not be encouraged during TAM because of the intense nature of the work environment. This is to ensure close consultation or monitoring or close supervision of every step of the way. For instance, high standards regarding safety, quality, time schedule, teamwork, and budget had to be fulfilled for all work performed. In such a case, workers are expected to adhere strictly to directives to avoid delays and HSE related issues. As work gets intense so does anxiety, tension, and stress levels of employees, this could lead them to avoid risk and behave in a more conventional way. Respondents ascribed to individualism (working independently), thereby, supporting the first preference of not taking risks. For example, during a catalyst change, approximately 22 people were allocated for this activity with 1 supervisor. Considering 1 person supervising an intense activity, this activity means close and loose supervision depending on the stage of the activity reached.

Workers were also inclined to building and sustaining future relationships and working on time to meet deadlines and schedules (long-term orientation). Plant TAM workers are task-oriented (masculinity) and this is not surprising given the nature of their job with little or no time to bond immediately and form close relationships during work hours. Some respondents indicated that they try to meet off-duty and after the maintenance event they try to maintain relationships. The orientation towards low power distance (delegation of work and less supervision) is also not surprising for the TAM environment but is contrary to how Malaysians have been described in cross-cultural studies. In low power distance, employees are expected to speak their minds in asking for their rights within the workplace. Another reason for the low power distance in TAM is due to the expert-specialist-based nature of TAM workforce where workers discuss issues among themselves, between host and contractors in problem-solving manner where each party is content with the outcome or they arrive at a consensus favorable to both parties. Hence, this explains the TAM workers preference for less supervision and cordial work relationship. The same can be seen in superior-subordinate communication where subordinates are more likely to challenge the superior or admit they do understand something. These findings support the fact that measuring culture at individual level reveals detailed orientation as compared to the national level type of comparison. It is therefore worth emphasizing that work culture differs from the main organizational and national cultures. It also means that, work environment and profession influences work culture. Therefore, these finding can also be attributed to the temporary nature of the work environment and profession, which may directly or indirectly influence respondents' cultural values.

Generally, the findings provide empirical evidence that employees' work culture predicts conflict management preference, especially where power distance has negative effect on dominating style. This is because for respondents with low power distance imposing their interest on others is not a priority as they themselves want to work with little supervision and interference. As is evident in the present results, the TAM workers predominantly Malaysians had preferences for less control which is contrary to the values of the larger society. The distinction between TAM workers and general Malaysian workforce is due to industrial advancement which has resulted in demand for skilled workforce and as a result more people are acquiring requisite skills to bridge the

inequality effect of status of the class (Heuer *et al.*1999). Leaders and subordinates become less distinguishable in TAM environment, and their value systems become increasingly similar. The fact that most TAM workers do not know each other and may be unfamiliar with the plant, increases anonymity, and hence less adherence to power distance.

Uncertainty avoidance predicted avoiding style because respondents avoiding taking risks will avoid conflict altogether. Individualism-collectivism predicted obliging style reiterating the nature of TAM work where although employees want to work less pressure and supervision, they give-in to the concerns of others during conflict negotiations. Individualistic and collectivistic tendencies are not mutually exclusive; thus, this is not an all-or-none orientation but rather one of emphasis. Individual could have both tendencies as in practice, they help individuals and teams to achieve set goals. Nonetheless, most people have dominant orientation, either individually oriented or group oriented most of the time (Singelis, 1994). Sometimes these tendencies may come into conflict. The culture of an organization influences the type of conflict that occurs and the ways in which a conflict is handled. In some work environments, the expression of conflict with superiors would not be tolerated whereas others may welcome such a behaviour. People with individualistic tendencies deal with workplace conflict by seeking to tolerate demands of different sides (integrating) whereas those with collectivists' tendencies are more likely to call on third parties to intervene or avoid the conflict (Tinsley and Brett, 2001). In terms of organizational communication, those with collectivistic tendencies place emphasis on personal relationships and oral agreements, whereas, those with individualistic tendencies place less emphasis on personal relationships but more on verbalized and explicit explanations at work.

Masculinity-femininity predicted integrating and obliging. Given the fact that those who ascribe to this work culture are task-oriented, it is only appropriate that they will want to use problem-solving means to manage conflict. This is consistent with prior research that revealed individuals high MFI tendencies value achievement and are assertive, as a result they are likely to be aggressive and confrontational during conflict. Such people are also inclined to use win-lose (dominating) conflict management styles. Individuals with femininity tendencies like to socialize and form close interpersonal relationships. As a result, they are likely to emphasize compromising and integrating style in managing conflicts to seek win-win solutions (Tankekin *et al.*, 2011). Masculinity/Femininity in an organization is described by work or task orientation or relationship orientation. Individuals with masculinity tendencies place emphasis on group working, this means social relationship and requires cooperation between employees and adaptability to group decisions are important. Anxiety level may also increase as employees are responsible for things that are done both by themselves and by group members (Tankekin *et al.*, 2011). Similarly, those who are oriented towards long-term short-term orientation prefer less aggressive conflict management style (compromising and obliging). Long-term orientation/Short-term orientation places emphasis on time orientation by distinguishing between displaced and diffused time orientation. Persons with displaced time orientation are exactly on time for work and appointments, whereas those with diffused time orientation are habitually late or habitual late comers.

It was hypothesized that temperament would moderate the relationship between culture and conflict management style (Figure 2). The results indicated that when work culture is compatible (high) with task assigned (or fulfilled/satisfied), the desire to manage and resolve issues effectively increases (high) and the presence of temperament does not add to the relationship. As a significant contribution, the present study casts a new light on the role of temperament in the relationship between cultural value dimensions and preferences for conflict handling styles. In support of a cultural-psychology approach to conflict management, the results showed that uncertainty avoidance, power distance and collectivism are valid predictors of temperament. However, in contrast to the hypothesized positive association between culture and temperament, it finds very low effect size (0.028). The authors argue that temperament may be an important aspect within cultures as it is characterized by tension and conflict in TAM, requiring understanding individual differences and applying the knowledge to interpretation of messages. It is expected that this may require the ability to understand feelings and to regulate and to use them. A potential explanation for the no effect of long-term and masculinity on temperament might be that strong group norms (within tensed, temporary and diversified work environment) are more important than the individual ability to recognize, regulate, and alter behavior. If relationships are to be established work may suffer as norms and values such as losing face, might have a more important influence on individuals' preferences than the individual ability to understand and alter behavior.

The results confirmed five hypotheses on culture's effect on preferred conflict handling styles. It was revealed that collectivism is positively related to an integrating style and negatively related to a dominating style of conflict handling. Uncertainty avoidance is positively related to an integrating style. The results show that long-

term orientation is related to the conflict styles of integrating and compromising. The study finds a positive relationship between power distance and an avoiding style as well as between power distance and a dominating conflict handling style. The results suggest that masculinity has no influence on the preferred conflict handling style. These findings provide a more comprehensive view and more complete understanding of the influence of culture on individuals' preferences for conflict handling styles, offering guidance in evaluating the importance of culture compared to other determinants of conflict handling style preferences such as personality and individual characteristics.

6. CONCLUSION

Cultural values affect TAM workers conflict management preferences, giving an insight into the multifaceted nature of work relationship. Plant TAM managers are tasked with recognizing the cultural values of their workers and understanding how these attributes contribute to the performance of their assigned tasks in particular and overall work relationship. Studies have suggested a number way for Project Managers to improve their ability to handle cultural issues by respecting and supporting team diversity and demonstrate inclusiveness by being receptive to alternative perceptions to encourage novelty in solving problems or conflicts. Another perspective is by highlighting that because everyone in any project team plays an important role, project team members should recognize and appreciate one another. Though the current findings highlight the degree to which cultural values influence the way TAM workers manage conflict, further research in necessary to throw more light on how individual TAM workers behavior changes for the benefit of the team. This research has been undertaken in petrochemical plants hence, the sample may be more indicative of the multi-industry individual culture than of their organizational culture. Future studies may investigate the relationship between cultural dimensions and conflict management styles in other mono-cultural and multicultural work settings.

In line with theme of the conference on industry 4.0, the study contributes as follows; understanding human behaviour in the work environment play an essential role in promoting innovation. On the one hand, cultural values seem to encourage and stimulate workers, promoting more novelty specifically in diversified teams. Conversely, different conflict styles (functional styles like integrating and compromising) seem to augment functional outcomes and decrease harmful outcomes, and thus have a positive effect on employing innovation and realizing effective performance. Based on the findings of the study, for Industry 4.0 initiatives to be effective, a cultural modification is necessary, calling for consideration in both cultural values and behavioural management. It is important to involve employees from all levels. Plant TAM managers will need to determine and implement the new organizational approach and cultural vision, one behaviour at a time.

References

- Bowles, S. (1998). Endogenous preferences: the cultural consequences of markets and other economic institutions. *Journal of Economic Literature*, 36(1), 75–111.
- Brewer, P., and Venaik, S. (2014). The ecological fallacy in national culture research. *Organization Studies*, 35(7), 1063–1086.
- Colburn, A. A. N., Neale-McFall, C., Michel, R.E., and Bayne, H.B. (2012). Counseling Supervision: Exploring the Impact of Temperament on Supervisee Satisfaction. *Ideas and Research You Can Use: VISTAS 2012*, 1.
- Friedman, R., Chi, S. C., and Liu, L. A. (2006). An expectancy model of Chinese– American differences in conflict-avoiding. *Journal of International Business Studies*, 37(1), 76–91.
- Gabrielidis, C., Stephan, W. G., Ybarra, O., Pearson, V. M. D. S., and Villareal, L. (1997). Preferred styles of conflict resolution Mexico and the United States. *Journal of Cross-Cultural Psychology*, 28(6), 661–677.
- Gunkel, M., Schlaegel, C., and Taras, V. (2016). Cultural values, emotional intelligence, and conflict handling styles: A global study. *Journal of World Business*, 51, 568–58.
- He, Z., Zhu, J. H., Peng, S., and Chen, X. (2002). Patterns of cultural orientations and conflict resolution in three cultural groups. *Proceeding of Annual Conference of the Association for Education in Journalism and Mass Communication*, the Association for Education in Journalism and Mass Communication, Miami Beach, FL, USA.
- Henrie, M. and Sousa-Poza, A. (2005). Project management: a cultural literary review. *Project Management Journal*, 36(2), 5–14.
- Hofstede, G. (1980). *Culture's consequences: International differences in work related values*. Sage Publications, Inc., Beverly Hills, CA, USA.
- Hofstede, G. (2001). *Culture's consequences: comparing values, behaviors, institutions, and organizations across nations* (2nd ed.). Thousand Oaks: Sage Publications.
- Holt, J. L., and DeVore, C. J. (2005). Culture, gender, organizational role, and styles of conflict resolution: a meta-analysis. *International Journal of Intercultural Relations*, 29(2), 165–196.

- House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., and Gupta, V. (Eds.). (2004). *Culture, leadership, and organizations: the GLOBE study of 62 societies*. Sage publications.
- Kirkbride, P. S., Tang, S. F., and Westwood, R. I. (1991). Chinese conflict preferences and negotiating behaviour: cultural and psychological influences. *Organization Studies*, 12(3), 365–386.
- Kirkman, B. L., Lowe, K. B., and Gibson, C. B. (2006). A quarter century of culture's consequences: a review of empirical research incorporating Hofstede's cultural values framework. *Journal of International Business Studies*, 37(3), 285–320.
- Lachman, R., Nedd, A., and Hinings, B. (1994). Analyzing cross-national management and organizations: a theoretical framework. *Management Science*, 40(1), 40–55.
- Leung, K., Bhagat, R. S., Buchan, N. R., Erez, M., and Gibson, C. B. (2005). Culture and international business: recent advances and their implications for future research. *Journal of International Business Studies*, 36(4), 357–378.
- Littrell, R. F. (2012). Cultural value dimension theories: Hofstede—a work in progress. *AIB Insights*, 12(4), 3–6.
- Mahalingam, A., Levitt, R. E., and Scott, W. R. (2005). "Cultural clashes in international infrastructure development projects: Which cultures matter?" in K. Sullivan and D. T. Kashiwagi, eds., *The Impact of Cultural Differences and Systems on Construction Performance*, Proceedings of the International Symposium of CIB W92/TG23/W107 on Procurement Systems, 8-10 February, Las Vegas, NV, USA.
- Merkin, R., Taras, V., and Steel, P. (2014). State of the art themes in cross-cultural communication research: a systematic and meta-analytic review. *International Journal of Intercultural Relations*, 38, 1–23.
- Mohammed, U. K., White, G. R. T., and Prabhakar, G. P. (2008). Culture and conflict management styles of international project managers. *International Journal of Business and Management*, 3(5), 3-11.
- Morris, M. W., Williams, K. Y., Leung, K., Larrick, R., Mendoza, M. T., Bhatnagar, D., et al. (1998). Conflict management style: accounting for cross-national differences. *Journal of International Business Studies*, 29(4), 729–747.
- Musah, A.A., Zulkipli, G., and Ahmad, N.S.I. (2017a). Sources of conflict and conflict management styles in temporary work environment: a case of plant turnaround maintenance workers. *International Journal of Project Organization and Management*, 9(2), 171-193.
- Musah, A.A., Zulkipli, G., and Ahmad, N.S.I. (2017b). Relationship between Organizational Communication and Job Satisfaction in Temporary Work Environment: An Empirical Study of Plant Turnaround Workers. *Global Business and Management Research: An International Journal*, 9(1s), 73-84.
- Musah, A.A., Zulkipli, G., and Ahmad, N.S.I. (2015). Work-culture and Communication in Diversified Project Teams of Plant Turnaround Maintenance Managers in PETRONAS Petrochemical Companies in Malaysia: A Conceptual Paper. *Platform Journal of Engineering, Science and Society*.
- Newman, K. L., and Nollen, S. D. (1996). Culture and congruence: the fit between management practices and national culture. *Journal of International Business Studies*, 27(4), 753–779.
- Ndubisi, N. O. (2011). Conflict handling, trust and commitment in outsourcing relationship: A Chinese and Indian study. *Industrial Marketing Management*, 40(1), 109–117.
- Oudenhoven, J. P., Mechelse, L., and Dreu, C. K. (1998). Managerial conflict management in five European countries: the importance of power distance, uncertainty avoidance, and masculinity. *Applied Psychology*, 47(3), 439–455.
- Purohit, Y. S., and Simmers, C. A. (2006). Power distance and uncertainty avoidance: a cross-national examination of their impact on conflict management modes. *Journal of International Business Research*, 5(1), 1–19.
- Rahim, M. A. (2001). *Managing conflict in organizations*. Westport, CT: Quorum Books.
- Schwartz, S. H. (1994). Beyond individualism/collectivism: new cultural dimensions of values. In U. Kim, H. C. Triandis, C. Kagitcibasi, S.-C. Choi, and G. Yoon (Eds.), *Individualism and collectivism: theory, method and applications* (pp. 85–119). Thousand Oaks, CA: Sage.
- Shore, B.; Cross, B. J. (2005). Exploring the role of national culture in the management of large-scale international science projects. *International Journal of Project Management*, 23, 55-64.
- Song, M., Dyer, B., and Thieme, R. J. (2006). Conflict management and innovation performance: an integrated contingency perspective. *Journal of the Academy of Marketing Science*, 34(3), 341–356.
- Taras, V., Kirkman, B. L., and Steel, P. (2010). Examining the impact of culture's consequences: a three-decade, multilevel, meta-analytic review of Hofstede's cultural value dimensions. *Journal of Applied Psychology*, 95(3), 405–439.
- Taras, V., Steel, P., and Kirkman, B. L. (2012). Improving national cultural indices using a longitudinal meta-analysis of Hofstede's dimensions. *Journal of World Business*, 47(3), 329–341.
- Taras, V., Rowney, J., and Steel, P. (2013). Work-related acculturation: change in individual work-related cultural values following immigration. *The International Journal of Human Resource Management*, 24(1), 130–151.
- Ting-Toomey, S., Gao, G., Trubisky, P., Yang, Z., Kim, H. S., Lin, S. L., et al. (1991). Culture, face maintenance, and styles of handling interpersonal conflict: a study in five cultures. *International Journal of Conflict Management*, 2(4), 275–296.
- Ting-Toomy, S., (1988). Intercultural conflict styles. A face-negotiation theory. In Y.Y. Kim and W.B. Gudykunst (Eds.) *Theories in intercultural communication*. (pp. 213-235) Newbury Park: Sage Publications.

- Trompenaar, A. (2004). *Managing people across cultures*. Capstone, London, UK.
- Tsai, J. L. (2006). Culture and temperamental variation in emotional response. *Emotion*, 6(3), 484-497.
- Wang, C. L., Lin, X., Chan, A. K., and Shi, Y. (2005). Conflict handling styles in international joint ventures: a cross-cultural and cross-national comparison. *MIR: Management International Review*, 45(1), 3-21.
- Xie, J., Song, X. M., and Stringfellow, A. (1998). Interfunctional conflict, conflict resolution styles, and new product success: a four-culture comparison. *Management Science*, 44(12, part 2): 192-206.
- Yoo, B., Donthu, N., and Lenartowicz, T. (2011). Measuring Hofstede's five dimensions of cultural values at the individual level: development and validation of CVSCALE. *Journal of International Consumer Marketing*, 23(3-4), 193-210.