

The Role of National Culture in Establishing an Efficient Safety Culture in Organizations: An Evaluation in Respect of Hofstede's Cultural Dimensions

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ABSTRACT: The aim of this study is exhibiting how national cultural dimensions affect the safety culture, by taking Hofstede's cultural dimensions into consideration. The limited number of academic research on this subject increases the importance of this study. Moving from the fundamental concepts related to the subject, the relation between the safety culture and national culture is analyzed by referring Hofstede's cultural dimensions with the support of relevant academic researches. The main result of this study, Hofstede's four national cultural dimensions – Power Distance, Uncertainty Avoidance, Individualism/Collectivism, Masculinity/Femininity- are effective from different aspects on employee's perceptions, attitudes and behaviours towards safety. The main concern in determining and settling safety culture in organizations is conforming the national cultural dimensions to safety culture dimensions. In this context, steps that will be followed in every level of safety management process that forms the basis of safety culture should be shaped in compliance with related national cultural dimension. In our study it is seen that "risk perception" is the most related dimension with national cultural dimensions within safety culture/climate dimensions. Thus, to establish an efficient safety culture for employees from different cultures it should be understood that safety risks are not perceived in the same way and training and communication activities should be prepared and sustained in this content.

KEY WORDS: safety culture, safety climate, national culture, Hofstede's cultural dimensions.

Recently in the related literature, there have been new definitions of organizational culture with the impacts of managerial-organizational developments. The gaining importance of employees' health and safety and the advanced standards' becoming widespread in this field has affected the improvement of "safety culture".

Millions of accidents and injuries recorded in both public and private sector in the world every year have rendered the assurance of safety in the work place priority. In the last decade there have been an increasing interest in the literature which considers the impacts of organizational factors on the workers' safety performance and negative outcomes of these such as accidents or injuries (e.g. Smith- Crowe, Burke and Landis 2003; Zacharatos, Barling and Iverson 2005). Most of these studies focus on safety culture and safety climate concepts. Although the difference between safety culture and safety climate is not visible all the time, studies about safety climate is directed to the psychological climate (e.g. the perceptions of employees about the characteristics of the work place) and the perceptions of employees which are more distinctive about the safety behaviors and outcomes such as accidents. On the other hand, scholars of safety culture are examining the organization's commitment to values and assumptions and the role of the effects in socializing with the organizational norms on safety culture and its outcomes through quantitative techniques (Burke et al. 2008).

Employees' health and safety is a holistic and administrative issue which is relating to interests every function, every department and every program in organizations. In other words, employees' health and safety cannot be considered separately and is interacted with other functions (1). The first legal business rules in the world were enforced to provide employees' health and safety and business law was put on as the law which protects employees' health and physical integrity. As a natural consequence of the globalization and contemporary life, related regulations have developed in the world as well as the emergence of international health and safety standards regarding regions and sectors.

In spite of all these developments, it has been observed that current laws, regulations and standards are not sufficient for providing the employees' health and safety. According to the official records of International Labour Organization (ILO) in every three minute in the world a worker passes away caused by an accident or disease related to his/her job. ILO also points out that every year approximately 110 million workers in the world have accidents or diseases related to their jobs and 180 thousand of them pass away. There are many other costs apart from the loss of production or labor that work accidents and job diseases imposed on the national economy. Medical expenses, legal expenses and insurance compensations are some of them (2). At this point it is very crucial to internalize the safety issue as a value in organizations and reflect this value to attitudes and behaviors of employees which shows making the safety culture as a primary value in organizations. Safety culture as one of the factors affecting organizations' success in activities related to safety is a sub-culture of organizational culture which has an impact on the members' attitudes and behaviors regarding occupational health and safety (Arezes and Miguel 2003).

Safety culture is directly related to thoughts, behaviors and perceptions of the organization's members concerning safety (Choudhry et al.2007; Seymen 2008). Individuals' thoughts and perceptions regarding the world, people and their behaviors are different from each other as members of particular cultures and the values they possess affect their attitudes while choosing the right behavior when confronted with a new situation (Danışman,

2000; Özkalp and Kirel 2000; Spector et al.2001; Miroshnizk 2002). Similarly, how employees perceive the safety procedures in organizations and related rules, norms and behaviors differ from each other. Generally in the literature, theories that focused on culture study the role of cultural values and norms as well as the compliance of internal (strategy, structure, systems and procedures) and external (national culture, history and politic institutions) factors. Differences in employees' values regarding their work or managerial implementations such as joining group works, promotions and some extrinsic awards which come from different cultural backgrounds appear as the effects of culture (Al-Yahya 2008). In this sense, safety culture will be affected by culture as the integration of organizations' strategies and systems.

Moving from the explanations above, in order to establish and sustain a desirable and convenient organizational culture, taking individuals' national cultural characteristics into consideration is necessary. Managing the interaction between the national culture and organizational culture efficiently is what organizations must do which desire to form a favorable safety culture. In this context it is observed that the relation between the safety and national culture appears more than before in the literature. According to Helmreich (1999), if organizations want their safety criteria to be effective and remarkable, they should make a comprehensive evaluation considering the national culture's effect on this. However, empirical researches analyzing the effects of national culture on safety attitudes, behavior and performance are very limited (Mearns and Yule 2009). Similarly, Tharaldsen and Haukleid (2009) emphasize that cultural perspectives have been given inadequate place in safety literature (Glendon and Standon 2000).

Besides many studies related to how national cultural characteristics affect attitudes and behaviors in work, Hofstede's study (1963-1973) appears as the most comprehensive one in this field. In his famous study including evidences of his work, published in 1980, "Cultural Consequences: International Differences in Work Related Values" he considers culture as a remarkable concept in understanding organizations and develops a four dimensional model related to differentiating cultures. These dimensions which are known as "Hofstede's Cultural Dimensions" are Power Distance (PD), Uncertainty Avoidance (UA), Masculinity/ Femininity (M/F) and Individualism/ Collectivism (I/C). Long-term/Short-term Orientation (LSO) (Confucian Dynamism) was added later as a fifth dimension. Via this study, the effects of national culture in relating the Hofstede's cultural dimensions and safety culture are put forward.

Analyzing the Concept of Safety Culture in Organizations

The concept of safety culture was first introduced with literature in 1986, after the Chernobyl disaster and gained ground in time. In IAEA (International Atomic Energy Agency)'s report on this catastrophic disaster, after it is claimed that one of the main reasons of the disaster is the inefficient safety culture of the organization and being pointed out the concept of safety culture, studies on this subject gained speed (Gadd and Collins 2002; Wiegman et al.2002). Safety culture emphasizes that the potential work accidents, job diseases or catastrophic situations are not merely caused by technical or individual mistakes; but they are also affected by managers and employees' perceptions, attitudes and behaviors. Thus, establishing an efficient safety culture for protecting the health and safety in organizations is essential (Reiman and Oedewald 2007).

Realizing the significance of safety culture in preventing the work accidents and health problems required defining and revising this concept. However, in literature there is not a consensus on this subject and no universal acceptance is reached related to the definition and content of the concept (Fernandez-Muniz et al. 2007).

Most of the definitions related to safety culture in literature are related to members of the organization's beliefs, thoughts and behaviors about safety (Choudhry et al. 2007). Therefore, safety culture as a sub culture of organizational culture is used to explain the structures which of individual beliefs and values especially focus on health and safety (O'Toole 2002). In other words, safety culture refers to the cultural structure in which safety has a priority and is taken into consideration by both the managers and employees. Guldenmun (2000) defines safety culture as "an organizational culture dimension that affects attitudes and behaviors related to decrease or increase of the health and safety risks in organizations"; Cooper (2000) as "cultural structure to which every organization member directed their attention and actions to increase safety in their daily works"; and Richter and Koch (2004) as "the aggregation of common learned meanings, experiences and work/safety interpretations that organization's members have - and partly defined symbolically- to take measures for health and safety risks and work accidents (Choudhry et al. 2007). Although there are many definitions of safety culture, the most comprehensive one is accepted as ACSNI's (Advisory Committee on Safety of Nuclear Installations). According to this definition, the safety culture of an organization is a product of individual and group values, attitudes, perceptions, competencies and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety management (Gadd and Collins 2002).

The common attribution of these definitions of safety culture is exhibiting a preventive attitude in the organization generally and the existence of mutual attitudes, beliefs and perceptions. On the other hand safety culture

differs from culture to culture as like it differs within every culture. Thus, forming an efficient safety culture in organizations is a process which is related to the quality and culture of that organization.

Currently, many researchers are trying to put forward the essential attributions that organizations need to have in order to establish a safety culture. Authors trying to put forward the characteristics of "positive safety culture", Pidgeon and O'Leary (1994, 2000) determined four main characteristics on this subject: Senior management's dependence to the safety subject by both their statements and actions; observing an intensive care towards the safety risks and dangers in every level of the organization; forming norms and procedures that can handle every defined safety risk and threat and lastly, reflecting organizational learning to application through such mechanisms as observation, accident/ damage analysis, feedback system (Jeffcot et al. 2006). Thus, the main aim of building a positive safety culture is creating an environment in which employees can be aware of the risks they may face with and protect themselves from unsafe situations. In this case, safety culture can be considered as a management tool which will be beneficial in controlling employees' beliefs, attitudes and behaviors (Fernandez-Muniz et al. 2007).

Organizational culture is a multi-dimensional concept (Guldenmund 2000). In order to understand the safety culture as a sub-culture of organizational culture, these dimensions should be taken into consideration. Researchers' efforts for putting these dimensions forward are continuing increasingly. In literature there are many different dimensions improved in relation with safety culture. These differences arise from the content of studies or the differences of the fields they are performed in (Itoh et al. 2007; Yang et al. 2010). Also on safety culture, the personal evaluations and definitions of researchers who study in this field make the compliance of these dimension harder (Fernandez-Muniz et al. 2007). On the other hand, it is observed that the concept of safety culture and safety climate is often confused, replaced with each other or used together in the academic literature. Hamadih (2004) points out that these two concepts are not still distinguished with precise boundaries and no compliance is reached about their contents and outcomes. Although definitions seem quite similar, safety culture is addressed as a more comprehensive concept than safety climate (McDonald et al. 2000). Safety climate is a form of organizational climate which refers to individual perceptions towards the "safety" concept in work environment (Neal et al. 2000). Guldenmund (2000) states that safety climate is related to the attitudes about safety in the organization although safety culture is related to the beliefs and persuasions that lay underneath these attitudes as dominant values. In other words, safety climate can be seen as an indicator of safety culture that employees have perceived in time. Thus, in evaluating the dimensions, studies related to safety culture and/ or climate have considered together.

When related literature is examined, it is observed that many researchers classified the studies on safety culture/climate dimensions (e.g. Guldenmund 2000; Glendon and Stanton 2000; Clarke 2000, Ali 2006). In these studies, many similar and different dimensions -in some sources as factors or indicators- that were used in measuring safety culture/ climate in different countries and work fields were noticed. About safety culture, many different dimensions were developed and measured from psycho-social quality to behavioral factors related to management, work accident, reporting etc. Although some of those dimensions are quite alike, measured dimensions vary from 2 to 16. These differences are caused by such factors as researchers' scales, different fields that studies are conducted (production of nuclear power, airline, navigational transportation, construction and structure sector, health sector etc.) or subjective evaluation in measurements and determination of the questions related to measurement (Itoh et al. 2007).

On the other hand, some authors may highlight several dimensions in these studies. For instance Flin et al. (2000) and Clarke (2009) highlighted *the management commitment to safety, the system of managing risk and safety* as dominant dimensions although Fernandez- Muniz et al. (2007) did for *the management commitment to safety and employee's involvement* and Clarke (2000) *the support given to safety by managers, safety management system and risk*. Studies conducted in manufacturing sector, "the commitment to safety by management" and "attitudes and behaviors exhibited by employees with the effect of the system" is showed as the factors which increase the safety problems (3). Similarly, Choudry et al. (2009) stated "the management commitment to safety", "employees' involvement" and "applicability of safety management procedures to work practices" as the most significant indicators of employees perceptions of safety performance in the dimensions.

In this study, "management commitment to safety, employees' participation and risk perception" dimensions are taken into consideration which can be linked directly to Hofstede's dimensions and seen as similar and/or common dimensions in many studies. Ali (2006) in his study classifies factors forming safety climate, emphasizes that these factors are taking important places in related literature. According to this, management's behaviors/ interests and efficiency/supervisors by Zohar (1980), Brown and Holmes (1986), Dedobbeler and Beland (1991), Coyle, Sleeman and Adams (1995), Mearns et al. (1998), Gravan and O'Brien (2001), Mohamed (2002); "involvement of employees" factor or as a similar definition "participating to work/ individual responsibility" by Dedobbeler and Beland (1991), Cox and Cox (1991), Coyle, Sleeman and Adams (1995), Williamson et al. (1997), Gravan and O'Brien (2001); "risk" factor or similar definitions "risk in the workplace/ perception of risk/ work' s being risky" by

Zohar (1980), Brown and Holmes (1986), Williamson et al. (1997), Mearns et al. (1998), Gravan and O'Brien (2001) and Mohamed (2002) are taken into consideration (Ali 2006). Flin et al. (2000) study shows that "management commitment to safety" and "risk perception" are the significant dimensions among safety climate dimensions. These three dimensions are examined with their main characteristics below:

Management Commitment to Safety

Management commitment to safety refers to the degree of attention to which managers show their subordinates' safety. This dimension can be manifested in the positive attitudes toward the activities directed to safety management and in the behaviors visible to the employees. In other words, management's attitudes and behaviors about safety issue is indicator in this respect (Fernandez-Muniz et al 2007). An organization's senior management plays an important role in making safety culture internalized. Through this dimension, it can be understood that senior management accepts safety concept as a core value and main principle. Therefore, in this context even in financial difficulty situations, there is a mainly positive approach towards increasing and sustaining safety in all organizational levels. If senior management gives safety importance, it provides necessary sources for the development and implementation of safety activities and supports these consistently. Equipment, procedures, training, recruitment, work programs etc. are thought and handled in safety framework. Moreover, activities such as participation of managers from all levels to critic safety activities with their subordinates, attending seminars on safety training etc. refers to this dimension (Wiegman et al. 2002).

One of the main dimensions that is included in academic literature and measured in researches related to organizational safety is the role of management. Albeit the discussions on this, it plays a crucial role in establishing safety culture. Where employees perceive managerial attitudes and activities towards safety to be less than adequate, problems may ensue that affects the effective functioning of the organization as a whole. This can also be explained with less commitment of employees to the organization because the management is unwilling to create a safety working environment for them (Cooper 1995). Neal et al. (2000) state that employees perceive that the management is supportive of their general welfare and well-being; they will be more likely to perceive that the organization values the safety of employees and this perception influences safety behavior. About safety climate factors a review and thematic analysis of safety climate factors by Flin et al. (2000) found that management was central to %72 of the studies (Yule et al. 2007). Many other research points out the existence of high accident rates in organizations which do not have a powerful managerial support about safety. (Cooper 1995).

Studies on this dimension had actually started before the term "safety climate" coined. Smith et al. (1978) has pointed out that employee perceptions of a high level of management commitment to safety decrease the accident rates in 42 industrial organizations in US. Zohar (1980) has also stressed the two influential dimensions in determining the level of safety climate in organizations one of which is the perceptions of employees about management commitment to safety. This argument has supported by a number of empirical studies (especially energy and manufacturing sector) (Yule et al. 2007).

In order to establish an efficient safety culture, providing the strongest possible commitment from senior management, walking the talk and demonstrating them to the employees in visible ways are necessary. For instance, enhancing the status of safety officers by promoting them to senior levels in organizational hierarchy, involving of senior management in safety committee more visibly, publication of safety committee reports and recommendations and implementing them rapidly, balancing the safety regulations so that productivity is not achieved by sacrificing safety, explaining that efficiency is not a desired outcome despite safety etc. (Cooper 1995; Choudhry et al. 2007).

Management commitment to safety not only affects safety in a positive way, but it also enables the existence of such outcomes as quality, reliability and profitability for organization (Cooper 1995).

Employees' Involvement

By employees' involvement, compliance of employee with safety procedures and personal efforts to improve working conditions in respect of safety (Fernandez-Muniz et al. 2007). Much research has shown that in organizations which have a powerful and distinctive culture, the level of employees' commitment to safety increases. Employees' commitment to safety can be described as "an individual's identification with and involvement in safety activities" which is linked to the willingness of undertaking efforts that will increase safety with a strong belief and acceptance. This dimension has significance in establishing and sustaining the safety culture in the organization. The high level of this value proves that employees accept safety initiatives of the organization and their personal approach will be directed to the increase of safety. And much research has proven that employees' involvement to safety can be enhanced by including them to decision making processes about safety in the organization (Cooper 1995).

Risk Perception

Risk has been seen as a key factor in early studies related to safety. For instance Zahor (1980) has measured safety while Brown and Holmes (1986) have determined "risk" as one of the factors in three-factor model they developed. Dedobbeleer and Beland (1998) has pointed "risk perception" as one of the two main dimensions related to safety climate and emphasized the importance of it by showing the close link with "the responsibilities and commitments of employees about safety" dimension (Flin et al. 2000). Tomas et al. (1999) has stressed that perception of actual risk is the mere direct factor in preventing accidents (Yule et al. 2007). Cox and Cheyene (2000) in their studies set forth that personal risk perception (how employees perceive the risks related to work), personal priorities and safety need are beneficial indicators in evaluating safety climate.

Although studies that link employees' behaviors towards senior management and risk-taking are limited to numbers, Kivimaki et al. (1995) have proved that employees' trust in senior management is related to the risk perception of them. Rundmo and Hale in their studies of examining the role of senior management has found that senior management affects the behavioral intentions of employees and this is related to safety work applications. Yule (2003) has proved that in energy firms in UK and US, senior managers who get higher performance results from their subordinates are more willing to discuss and perceive the risks that their subordinates face with (Yule et al. 2007).

Hofstede's Cultural Dimensions

A big part of national culture is reflected to the organizations that operate in that country. Although organizations have their own unique cultural traits, they are densely affected from the society they are located in and have different cultural structures (Tüz and Altıntaş 2008). It is inevitable for an individual which is subject to cultural conditioning to see the world as "the way he/she looks at it"(Demir and Okan 2009).

The most comprehensive and influential study which have been conducted to the present was realized by Geert Hofstede (1967-1973) (Tüz and Altıntaş 2008; Mearns and Yule 2009). Hofstede's work is one of the most widely employed framework for examining cultural differences in organizational and human resource management practice and most benefited by the researchers (Burke et al.2008; Blanchard and Frasson 2005). Hofstede's argument has played an important role in making the effects of national culture on motivation, leadership and organizational theories the key concern (Demir and Okan 2009).

Hofstede, when he was working in IBM as a psychologist between 1967 and 1973 has completed his experiment under the light of the data he collected from more than 100.000 individuals from 50 countries and 3 regions. In his famous work published in 1980 "Cultural Consequences: International Differences in Work Related Values" including the findings of this study, he considered culture as an influential power in understanding cultures and developed a four dimensional model (Seymen 2008; Tüz and Altıntaş 2008; Clements et al. 2009). Known as Hofstede's Cultural Dimensions, these are *PD*, *UA*, *I/C*, *M/F*, and *LSO* (*added later when the study was extended to cultures of the Far East*) (Seymen 2008; Mearns and Yule 2009).

Although there are debates and critics on Hofstede's Cultural Dimensions, it is accepted that it has the most convenient factorial structure to use in empirical research, reveals the difference between different national groups in every cultural dimension and stable over time (Mearns and Yule 2009).

Hofstede's Cultural Dimensions are explained above briefly:

Power Distance

Power distance (PD) is a measure of the interpersonal power or influence between subordinate and senior as perceived by the less powerful of the subordinate (Hofstede 2001). PD, that is the extent to which members of the society accept that power in institutions and organizations is distributed unequally (Hofstede 1983). Underneath the PD concept, there lies the inequality of people physically and mentally and how much importance is given to this in society. When examined from organizational point of view PD is related to the degree of authority's centralization and autocratic leadership (Hon 2002).

Key differences between low and high PD in organizations can be classified like this in Table 1.

Table 1. Key differences between low and high power distance in organizations

LOW PD	HIGH PD
Decentralized decision structures; less concentration of authority.	Centralized decision structures; more concentration of authority.
Flat organization pyramids	Tall organization pyramids.
Small proportion of supervisory personnel.	Large proportion of supervisory personnel.
Hierarchy in organizations means an inequality of roles, established for convenience.	Hierarchy in organizations reflects the existential inequality between higher-ups and lower-downs.
Managers rely on personal experience and on subordinates.	Managers rely on formal rules.
Subordinates expect to be consulted.	Subordinates expect to be told.
Consultative leadership leads to satisfaction, performance and productivity.	Authoritative leadership and close supervision lead to satisfaction, performance and productivity.
Subordinate-superior relations pragmatic.	Subordinate-superior relations polarized, often emotional.
Institutionalized grievance channels in case of power abuse by superior.	No defense against power abuse by superior.
Possibilities to escape from role ambiguity and overload.	Frequent role ambiguity and overload.
Openness with information, also to nonsuperiors.	Information constrained by hierarchy.

Source: Hofstede 2001.

In places that have high PD, employees obey the boss/ manager because of the reason that they have the right to command and expect their fulfillment. On the other hand, in places that have low PD, employees obey as they believe their boss/ manager's commands are accurate. Employees in low PD have the tendency to improve relations between leaders and subordinates (Aydıntan 2005; Hon 2002). In cultures that have low PD people have a tendency to consider the other people equal despite their official status. In such high PD cultures, powerful people have priority in society and they enjoy carrying symbols that reflect their status (Masacarenhas et al. 2010).

Uncertainty Avoidance

Uncertainty avoidance (UA) is the level anxiety within the members of a society in the face of unstructured or ambiguous situations (Hofstede 1983). In other words, UA refers to the degree to which a society's members feel themselves comfortable and their willingness to take risks in uncertain situations that outcomes are not clear (Beugelsdijk and Frijns 2010). If the information is inadequate or unclear, there exists a complexity, changes occur too fast and unexpectedly, there is an unstable environment and people feel themselves under threat (Aydıntan 2005; Hon 2002).

Key differences between low and high UA in organizations are as follows in Table 2

Table 2. Key Differences between low and high uncertainty avoidance in organizations

LOW UA	HIGH UA
Weak loyalty to employer; short average duration of employment.	Strong loyalty to employer, long average duration of employment.
Skepticism toward technological solutions.	Strong appeal of technological solutions.
Innovators feel independent of rules.	Innovators feel constrained by rules.
Top managers involved in strategy.	Top managers involved in operations.
Power of superiors depends on position and relationships.	Power of superiors depends on control of uncertainties.
Tolerance for ambiguity in structures and procedures.	Highly formalized conception of management.
Appeal of transformational leader role.	Appeal of hierarchical control role.
Relationship orientation	Task orientation
Precision and punctuality have to be learned and managed.	Precision and punctuality come naturally.
Flexible working hours not appealing.	Flexible working hours popular.
Belief in generalists and common sense.	Belief in specialist and expertise.

Source: Hofstede 2001.

In high UA, level of individuals' feeling themselves under threat in risky and unknown situations is high. This type of culture exhibits itself in rigid rules, high formality and less tolerance towards people who moves away from norms to prevent uncertainty. In weak UA, differences are tolerated more and it is believed that discussions and competition has positive effect on performance. In these societies, individuals learned to live with uncertainty and not feel anxious about this, so they can handle risks easier without fear (Aydıntan 2005; Hon 2002).

Individualism/ Collectivism

The starting point of individualism/collectivism (I/C) is individuals and relationships between them. Individualism stands for a preference for a loosely knit social framework in which individuals are supposed to take care of themselves and their families only. On the contrary this collectivism stands for a preference for a tightly knot social framework in which individuals are emotionally integrated into an extended family, clan, other in-group which will protect them in exchange for unquestioning loyalty (Hofstede 1983).

If relations between individuals in a society are loose, they are considered as "individualistic societies" and in such a structure, individuals protect their own or immediate family's interests more. If relations between people are strong, they are considered as "societies that have collectivistic tendencies". Collectivism refers to belonging to a group or being excluded from it. When belonged to a group, group members care each others' welfare, act cooperatively without any doubt and feel anxious when being separated from the group. They also have similar characteristics with other group members (Francesco and Chen 2004).

Key differences between low and high individualism in organizations are as follows in Table 3:

Table 3. Key Differences between low and high individualism in organizations

LOW INDIVIDUALISM	HIGH INDIVIDUALISM
Employees act in the interest of their in-group, not necessarily of themselves.	Employees supposed to act as "economic men".
Hiring and promotion decisions take employees' in-group into account.	Hiring and promotion decisions should be based on skills and rules only.
Poor performance reason for other tasks.	Poor performance reason for dismissal.
Employee commitment to organization low.	Employee commitment to organization is high.
Employees perform best in- groups.	Employees perform best as individuals.
Training most effective when focused at group level.	Training most effective when focused at individual level.
In business, personal relationship prevail over task and company.	In business, task and company prevail over personal relationship.
Organizational success attributed to sharing information, openly committing oneself, and political alliances.	Organizational success attributed to withholding information, not only openly committing, and avoiding alliances.
Belief in collective decisions.	Beliefs in individual decisions.
Employees and managers report teamwork, personal contacts, and discrimination at work.	Employees and managers report working individually.
Less control over job and working conditions; fewer hours worked.	More control over job and working conditions; longer hours worked.

Source: Hofstede 2001.

Both individualism and collectivism are multi-dimensional constructs; but theorists agree that the main difference between them is in the level of in-group loyalty and identity. Individualists perform less group loyalty; they give importance to individual aims more than group aims. On the contrary, collectivists do not consider any difference between individual and group aims and if they do so, they may sacrifice from their individual aims. With regard to in-group identity, central theme of individualism is the conception of that individuals as autonomous beings who are separate from groups although the central theme of collectivism the conception of individuals as aspects of groups (Yukl 2003).

Masculinity/ Femininity

The base of masculinity/femininity (M/F) arises from the role distinction between sexes. Masculinity stands for a society in which social sex roles are sharply differentiated and the masculine role is characterized by need for achievement, assertiveness, sympathy for the strong, and importance attached to material success. On the contrary this, femininity stands for a society in which social sex roles show considerable overlap and both the masculine and feminine role are characterized by need for warm relationships, modesty, caring for the weak, and importance attached to the non-material quality of life (Hofstede 1983).

In some countries, there are no clear boundaries between male and female roles while in some others, roles are strictly defined. Thus, in those kinds of cultures, while male subjects are more masculine and dominant women appear as more manservant and protectionist. So, high social-sex discriminative countries are considered as masculine while low sex discrimination is feminine (Aydintan 2005; Hon 2002). Masculinity shows the extent to which masculine values (competitiveness and performance based approach) are appreciated (Aziz et al. 2008).

Key differences between low and high masculinity in organizations are as follows in Table 4:

Table 4. Key Differences between Low and High Masculinity in Organizations

LOW MASCULINITY	HIGH MASCULINITY
Work in order to live.	Live in order to work.
Meaning of work for workers: relations and working conditions.	Meaning of work for workers: security, pay and interesting work.
Stress on equality, solidarity, and quality of work life.	Stress on equity, mutual competition, and performance.
Managers are employees like others.	Managers are culture heroes.
Managers expected to use intuition, deal with feelings, and seek consensus.	Managers expected to be decisive, firm, assertive, aggressive, competitive, just.
Resolution of conflicts through creation of work groups.	Resolution of conflicts through denying them or fighting until the best "man" wins.
Lower job stress: fewer burnout symptoms among healthy employees.	Higher job stress: more burnout symptoms among healthy employees.
Preference for smaller companies.	Preference for larger companies.
Preference for fewer hours worked.	Preference for higher pay.
More sickness absence.	Less sickness absence.

Source: Hofstede 2001.

Long-versus-Short Term Orientation (LSO)

Long-versus-Short Term Orientation (LSO) (or Confucian Dynamism) dimension indicates to what extent the future has more importance than the past or present (Masacarenhas et al. 2010). Long Term Orientation stands for the fostering of virtues oriented towards future rewards, is particular, perseverance and thrift. Its opposite pole, Short Term Orientation stands for the fostering of virtues related to the past and present, in particular, respect for tradition, preservation of "face" and fulfilling social obligations (Hofstede 2001). Although some people may see the things happened to them with a wider perspective towards future; some may foresee the short- term outcomes. Moving from Confucius doctrine, this dimension is referred as "Western and Eastern logic" and is culturally analyzed especially on "virtues". Confucian dynamism tries to explain a structure that hierarchy is accepted fundamentally; patience, permanence and consistency is valued and traditions and social responsibilities have organizational priority (Aydintan 2005; Hon 2002).

Key differences between LSO Societies as follows in general in Table 5:

Table 5. Key Differences between LSO Societies

LOW LSTO	HIGH LSTO
Less satisfied with daily human relations.	Daily human relations satisfying.
In business, short-term results: the bottom line.	In business, building of relationships and market position.
Government by law.	Government by men.
Short-term virtues taught.	Long-term virtues taught.
Analytics thinking	Synthetic thinking.

Source:Hofstede 2001.

In short-term oriented cultures, traditions, fast acquired solutions, implementing social responsibilities and answering received presents (deserving them) are significant. In long- term oriented cultures, people value future more than past or present (Masacarenhas et al. 2010:555-556).

Analyzing Safety and National Culture Relationship with Hofstede's Dimensions

In organizations, employees are affected from the society's attitudes and behaviors that the organization is located in. An organization's safety culture is shaped by the national cultural factors of that particular society interactively. With a given culture, social forces that shape attitudes and behaviors about safety form the main subject of safety climate (Ali 2006). Management commitment to safety, their applications on this issue, efforts to settle, employees' perceptions towards this and their attitudes and behaviors are affected from national culture. This means, in national organizations, the prevalent culture has dominancy over safety culture; although in multi-national organizations which bring together the employees and managers come from different cultures, different national culture aspects gain importance. Thus, when an efficient safety culture desired to be determined, dominant national cultural factors

should be taken into consideration first.

Especially in large multi-national organizations, determining a common safety culture is a much more complex and harder process than others. None of the tools and concepts developed related to safety is independent from national culture. It is very usual to see that when safety tools and procedures which are produced in any culture are transferred to another culture, same results are not reached. Compliance of safety and organizational culture is an important factor at this point (Hudson 2007).

Although studies which are about impact of national culture on work behaviors have been continuing in related academic literature, there are limited numbers of studies that empirically and theoretically examines the impacts of national culture on safety culture/climate and safety/dangerous behaviors and justifies them (Burke and Signal 2010). Ali (2006) mentions the inadequacy of studies that examines direct or indirect impacts of national culture on local safety conditions in construction sector. Some of these studies are mentioned above:

- In a study conducted on pilots work in aviation sector and searches the differences in terms of high risk/ high reliability of national cultures shows that (e.g. Meritt and Helmreich 1996; Helmreich and Meritt 1998) effects of cultural differences between pilots are observed in especially in their attitudes towards order-command, automation, rules and regulations (Mearns and Yule 2009).

- Spangenberg et al. (2003), researched why Danish workers experience time loss for four times to Swedish workers in a corporation that conducts a Denmark-Swedish railroad business. The most important finding of this study is that business politics and applications may show significant differences on work groups and individual factors from safety point of view (Mearns and Yule 2009).

- Burke et al. (2008), in their studies investigate the role of national culture and organizational climate on the efficiency of safety training conducted in organizations (Burke et al. 2008). As a result of this study, it is observed that UA as a dimension of national culture plays a meditative role in the safety training to reduce the accidents and injuries.

- In a study conducted by Mohamed et al. (2009), local construction workers' behaviors, perceptions and attitudes towards safety are researched and the related outcomes are linked to the effect of safety culture. As a result, in collectivist and high UA cultures, workers have the safety conscious and belief in the work place.

- Ali (2006) in his study searched for the effect of national culture on safety climate in Pakistan's construction sector. In this context, interrelations between employees' safety behaviours and national culture were searched and as a result, collectivist, feminine and high UA cultures show safer behaviours. This study also proves that managers' preferences about safety are affected by cultural tendencies.

- Jaselskis et al. (2008) in their study suggested a culturally integrated training program for the Spanish workers in construction sector in US in order to exhibit a better safety performance. In the study language and communication are emphasized as factors that affect providing safety performance.

- Havold (2007) found a positive correlation between Hofstede's PD, I/C, UA dimensions and safety perceptions of workers in his study conducted in 10 countries.

- Gyekye and Salminen (2005) tried to explain the perceptual differences towards a safe work place between Finnish and Ghanaian industrial workers with PD dimension.

- In safety literature, there are some people who study relation between traffic safety and national culture. Melinder (2007), one of them proved in her study conducted in 15 Western European countries that prevalent religion and welfare level affect safety values considerably. Another study that examines the relation between traffic safety and national culture is made by Lajunen and Özkan. They (2004) in their study examined the impacts of national culture on traffic safety by comparing Turkey and European countries. In the study, factors affecting traffic safety are explained through a model and cultural values are indicated as the factors that affect region-based traffic safety from the highest level in macro aspect (Lajunen and Özkan 2004).

- Schubert and Dijkstra (2009) tried to put forward the main problems related to safety in organizations which had to work with foreign building contractor and workers in agriculture, fuel and chemistry industries in North Holland. One of the main problems determined in the study is cultural differences.

Above mentioned studies are supporting that national cultural differences are affecting safety culture. While making relation between national culture and safety culture/climate Hofstede's cultural dimensions are highly used. The main reason of this is that Hofstede's cultural dimensions draw the most comprehensive and convenient framework in workplace safety and is a highly accepted and convenient scale in conceptualizing and measuring culture's role (Burke and Signal 2010; Ali 2006). Yule and Mearns think that when Hofstede's five dimensions are applied to work place, there will be different effects on safety culture of the members of the organization (Mearns and Yule 2009). Moving from similar reasons, in our study Hofstede's cultural dimensions are taken as the main framework and covered with safety culture/ climate dimensions in detail (see Figure 1).

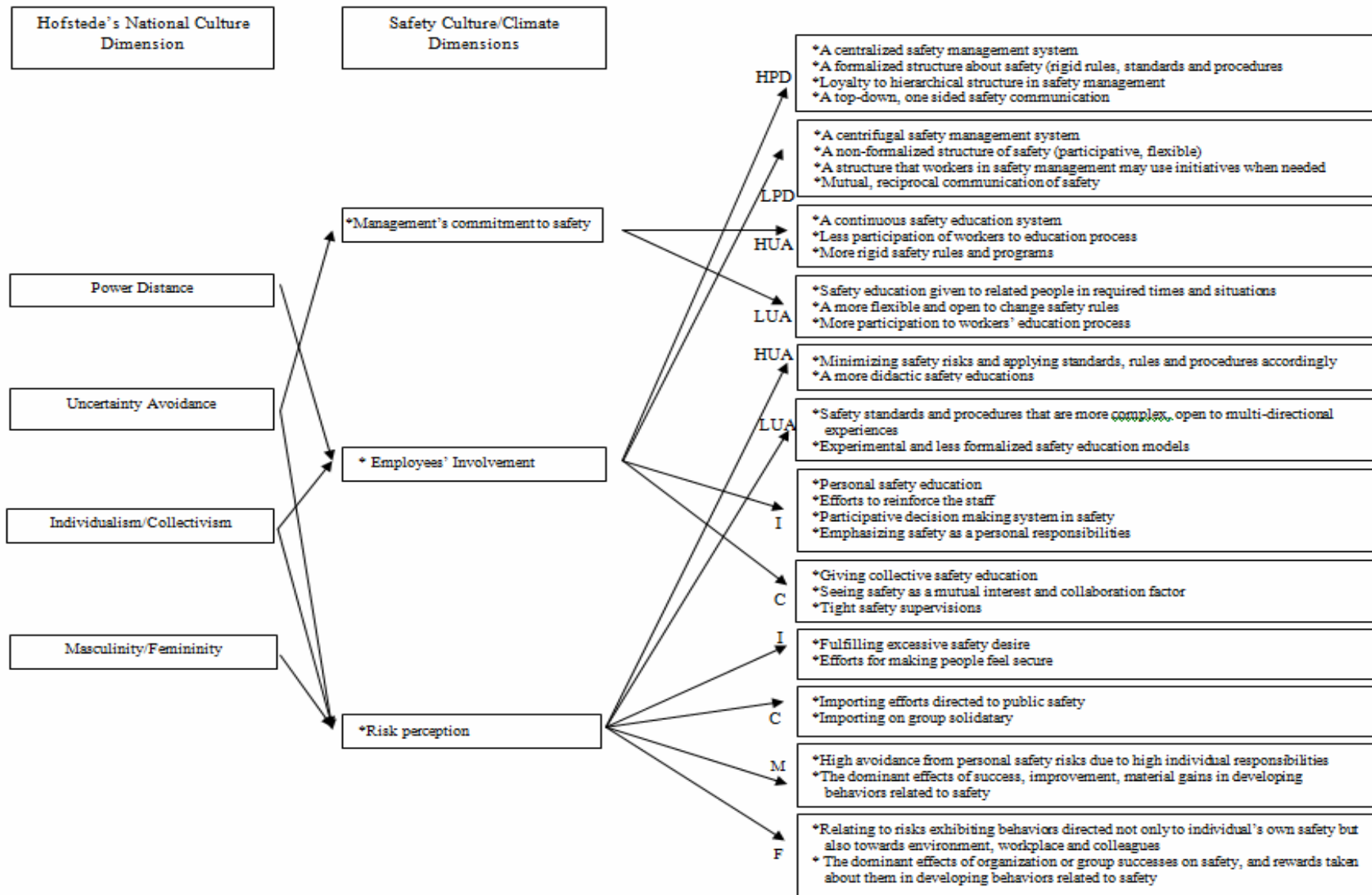


Figure 1. Relationship between Hofstede's dimensions and safety culture

The Relationship between Power Distance and Safety Culture

PD is related to interpreting the hierarchical situation in an organization. In high PD cultures, the authority of management is accepted as a natural consequence of inequality; although in low PD cultures hierarchy is a set of rules imposed to provide compliance among equal subjects. PD is a dimension that can be suitable for any managerial area including safety management (Schubert and Dijkstra 2009).

Hofstede's PD is manifested as a dimension that is closely associated with attitudes and behaviours towards safety in many research that examine the relation between national culture and safety culture/climate (Mearns and Yule 2009, Mohamed et al. 2009; Ali 2009). This dimension moving from its definition and characteristics is explained with "employees' involvement" dimension which is considered as related to national safety culture in our study.

In high PD cultures superiors are encouraged to wield and exercised power; subordinates are expected to be passive; the organization is hierarchical and decision-making is decentralized (Mearns and Yule 2009). Thus, when desired to create an effective safety culture in organizations, decisions about safety are made by senior management group and subordinates are expected to obey this (Gyekye and Salminen 2006). For instance, according to the findings of a research conducted in aviation sector, (Meritt and Helmreich 1996; Helmreich and Meritt 1998) pilots who have high PD backgrounds have the tendency to obey safety orders and follow standard safety procedures more (Mearns and Yule 2009). Briefly, high PD refers to the usage of formal rules and decision mechanisms (Aziz et al. 2008).

In low PD, closer relations among superiors and subordinates can be seen, organizational structure is straighter and subordinates participate to decision making process (Mearns and Yule 2009). In low PD cultures, managers believe their subordinates are able to perform their duties and success in this. Thus, in these cultures employees are more empowered, participate in planning and decision making process and prefer to work in decentralized organizations in which power is more equally shared (Hannay 2008). According to some authors who support the idea that low PD is a more convenient structure in terms of safety culture (e.g. Reason (1997), determining an "efficient" safety culture can be realized through an eager and active participation of employees. Thus, since one-way communication is used in order to bring information and experience from superiors to subordinate, employees' contributions to establish a positive safety culture are prevented (Mearns and Yule 2009). Similarly, in Cronje's (4) study, high PD is explained as the reason why employees feel the lack of self confidence and cannot taking initiatives.

Moving from these explanations, in which polar PD as a national cultural dimension is remarkable issue for superiors who are responsible from safety management. At this point, employees' involvement should be examined in a process which includes planning, implementing and reviewing of safety. Employees coming from high PD prefer managers' forming rules and regulations about safety beforehand, standardizing them and dictating themselves as commands complied with the hierarchical structure. In other words, employees think all the responsibilities about workplace safety belong to management and they have no other responsibility rather than obeying rules. Managers who face with this kind of employee structure can determine a more efficient safety culture with such mechanisms as centralized structure, rigid rules and procedures, one way top-down communication and strict supervision. Although in low PD, employees want to participate in every process of safety management, express their opinions and suggestions clearly, use initiatives when there is a safety problem in workplace and believe the necessity and connivance of rules and procedures about safety. Thus, when worked with such a labour force, behaving in compliance with this is beneficial for managers. In Figure 2 below, the relation between PD and safety culture/climate can be seen diagnostically.

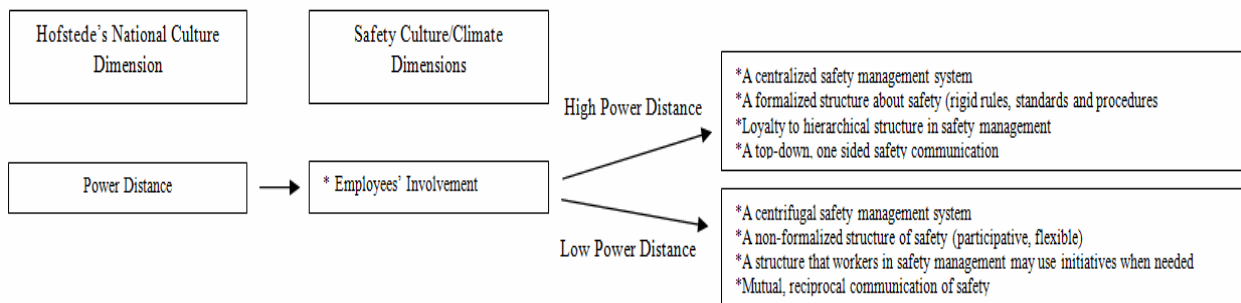


Figure 2. Relations hips between power distance dimension and safety culture/climate dimensions

The Relationship between Uncertainty Avoidance and Safety Culture

UA refers to the extent to which members of a particular culture feel anxious from uncertain and complex situations. In high UA cultures, individuals desire predictability and structuring in their organizations, institutions and relations. In order to cope with the anxiety resulting from uncertain situations; individuals feel the necessity of following rules and complying with behavioural codes defined with certain boundaries. Similarly, it is proved that UA has a powerful and positive relation with getting knowledge instinct in order to reduce the uncertainty in communication process and formalization (Burke et al. 2008).

UA avoidance and safety concept is inevitable. There are various researches supporting this relation in academic literature (Burke et al. 2008, Masacarenhas et al. 2010, Ali 2009, Havold 2007, Meeuwesen, Brink-Muinen and Hofstede 2009, Schubert and Dijkstra 2009). In Hofstede's study it is observed that in high UA cultures "safety" requirements of individuals are more tangible (Demir and Okan 2009). In low UA cultures, individuals are subjected to fewer rules as possible and unpredictable risks and complexities are not very irritating. On the other hand, in high UA societies, individuals are subjected to more strict rules and laws and there are various safety measures to prevent uncertain or extraordinary situations (Masacarenhas et al. 2010).

In related literature, one of the studies which emphasize that UA has a special role on safety culture has been put forward by Burke et al (2008). Authors in the study claim that Hofstede's UA dimension has importance as a potential mediator in terms of efficiency in organizations about safety training. Firstly while training high UA individuals about safety, it is expected to have a more structured training methods and less participation of trainees. So, in high UA cultures, standard, structured didactic training practices (e.g. lecturing, viewing videos) were preferred in order to reduce the effects of ambiguity and uncertainty such as more unstructured, experimental methods (e.g. role-playing, discussion of cases, scenario simulations involving). The reason of this is experimental training methods' increasing variations in training process. Also, experimental training techniques increases the links between trainers-trainees and within trainees and this enables attendants' analyzing the content of training, establishing dialogs and understanding conceptual structures directed to safety knowledge in training process. Secondly, in high UA cultures, it is observed that people may use more unquestioning automation and depend on standard operation procedures. However, this situation may result in limiting adaptation of changing situations and so that, reduce the efficiency of safety training in transferring it to work. Because dependence to standard procedures may limit adaptability to changing events, in high UA culture the effect of safety training will be less than low UA ones (Burke et al. 2008).

Moving from explanations above, it can be seen that UA dimension is related to management commitment to safety and risk perception dimensions included in our study; but a more strong relation can be established with risk perception. The higher UA gets, the less risk taking tendencies about safety will be preferred by individuals. In other words, they will prefer the structuring of all systems, policies and rules without safety risks. As Cronje states, in high UA cultures, there are practices such as preventing safety errors, simplifying rules and regulations, developing limited choices and bringing smaller amounts of information, although in low UA, there are more complex tasks, avoiding over protection, maximizing of choices rather than redundancy (4). These characteristics can be guiding in explaining the relation between managers and their commitment to safety. In UA cultures employee expect their safety to be given importance by superiors. Structured safety management system that management has conducted; clear, understandable and applicable standards; formal rules and procedures; performing a sustained and didactic safety training program and being guided more in terms of safety reinforce the perception in employees that safety is committed by management. Low UA employees are less emotional, more tolerant towards uncertainty and willing to take risks. (Altay 2004). Thus, by taking employees' attributions in this type of culture into consideration, in managerial, safety applications, instead of regular basis safety training, a training program which are structured in frame of changing training needs and used interactive methods; safety management system that can be updated according to changing environment conditions with modern technological methods; empowering employee instead of over protecting them should be preferred in order to determine an efficient safety culture. In Figure 3 below, the relation between UA and safety culture/ climate can be seen diagnostically.

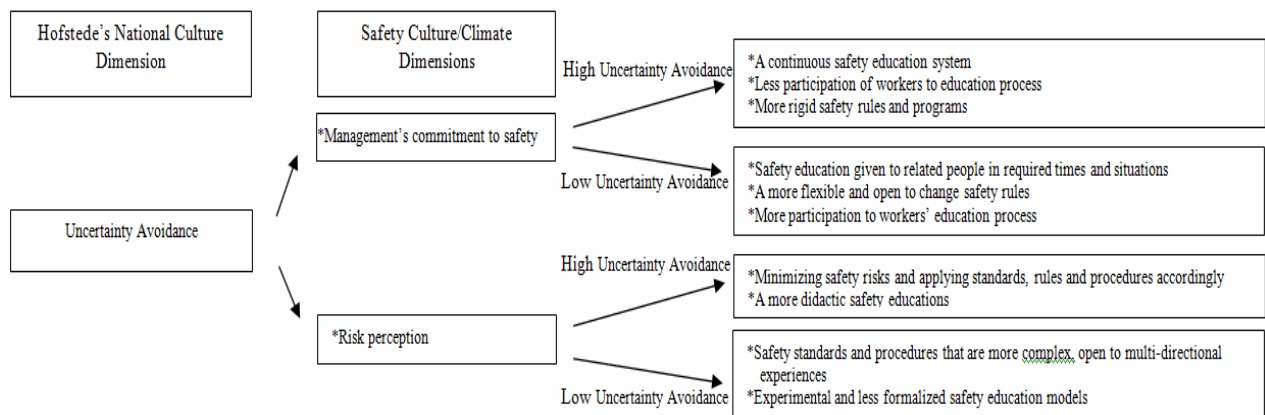


Figure 3. Relationships between uncertainty avoidance dimension and safety culture/climate dimensions

Relationship between Individualism/ Collectivism and Safety Culture

Individualism shows the relations between the individual and group. It is pointed there is individualism when members of the society perceive themselves as individuals before the members of a group. Individualistic behaviours emphasize on personal benefits and employees are expected to take care of themselves. Individualistic cultures are open to controversial and argumentative speeches rather than official slogans and subdued hyperbole. In these types of cultures individuals' having a successful social image is more significant than relationships and traditions (4). In collectivistic cultures as contrary to this individuals perceive themselves as a member of a society before as individuals; group is the main factor determining beliefs and values (Hon 2002: 26-2). In these kinds of cultures, individuals grow up in extended families or socially cooperated groups; their loyalty to a group, tribe or village push them to protect their group's interests. Individuals' own opinions and beliefs do not differ from opinions and beliefs of the group they live in (Aydintan 2005).

Explanations above demonstrate that I/C dimension is closely associated with "employees' involvement" and "risk perception" as dimensions of safety culture/climate. When examined from "employees' involvement" dimension, in high individualistic cultures it is more common independent thinking and taking initiative (Aziz et al. 2008). If collectivism is a highly dominant, individuals avoid from expressing their personal opinions or visions when they face to a critical decision making situation. In obeying safety rules, instead of taking initiatives individually, following others and imitating them might prevail. On the other hand, according to Fiske (2002), because individualism is related to talking about more direct communication and problems, it will benefit more in order to develop a positive safety culture (Mearns and Yule 2009)..

I/C dimension is closely associated with risk perception in terms of safety. Individualism requires individuals' to protect and put themselves priory (Mearns and Yule 2009). In individualistic societies individuals believe in personal success and importance of individual rights and struggle for them; it is expected to be responsible from oneself and their immediate family (Masacarenhas et al. 2010). In collectivistic cultures, individuals see themselves responsible from their extended families, close environments (relatives, friends etc.), groups, organizations and countries they are linked to more than their own responsibilities (Demir and Okan 2009).

In economics and social psychology literature distinction between collective and individual decision-making and its effect on risk behaviours have been focused on. For instance, Shupp and Williams (2008) suggests that groups are more risk averse than individuals in high risk situations and group decisions show minor differences than individual decisions (Beugelsdijk and Frijns 2010). This shows the low tendency of risk taking behaviour in collectivistic cultures. Chui et al. (2010) stressed that individualism can be linked overconfidence; in more individualistic societies, decisions are taken by individuals and these decisions are made on the basis of individual's feeling of security (Beugelsdijk and Frijns 2010). In collectivistic cultures, everyone expects an initiative from the other in order to change the unquestioned dependency. This may be evaluated with safety to some extent. In taking safety precautions and enforcing them, concerns towards collective safety instead of personal safety are taken into consideration and there is a group solitary. National culture's collectivism dimension refers to strict societal relations. Individuals of these kinds of societies desire to conform to the group they belong to. Because in collectivistic cultures, group's willpower is expected to affect the individuals' beliefs and values. These cultures supervise their members with an external-societal pressure; although in individualistic cultures this supervision is provided with the individual's self-control or internal pressure (Demir and Okan 2009).

In this context, in determining an efficient safety culture it is crucial for organizational management to behave by taking employees cultural backgrounds (I/C) into consideration. Towards individuals coming from individualistic societies, participative and empowering approach should be considered; more detailed personal safety trainings should be given; safety should be emphasized as a personal responsibility. While in collectivistic cultures, to generalize safety culture, safety can be shown as a mutual beneficial and cooperative theme; safety management can be structured by the help of group norms and conducted as an impressive factor with collective trainings.

In Figure 4 below, relation between I/C dimension and safety culture/climate can be seen in diagnosis.

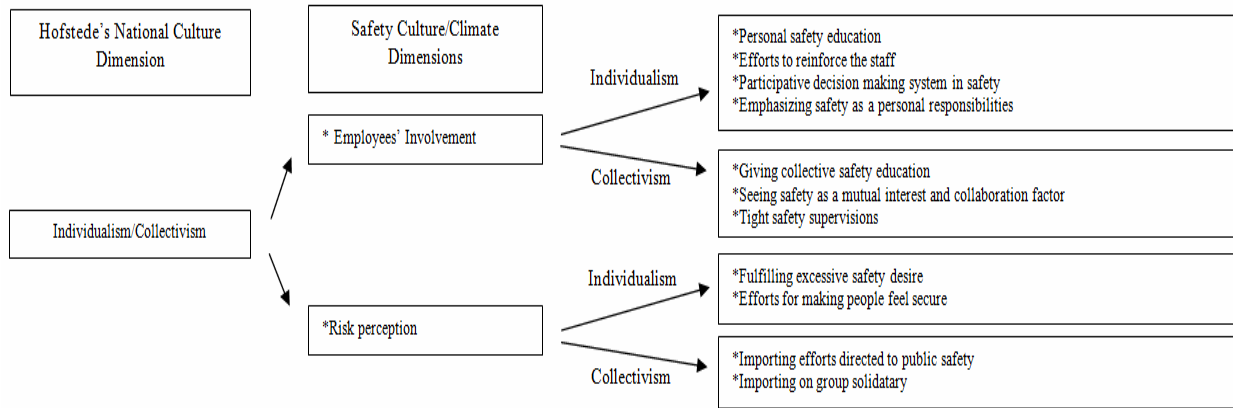


Figure 4. Relationships between individualism/collectivism dimension and safety culture/climate dimensions

Relationship between Masculinity/ Femininity and Safety Culture

In dominant masculine cultures, assertion, enthusiasm, effectiveness, competition and materialism is remarkable; differences between sexes are visible. On the other hand, in extremely feminine cultures, relations and quality of life is more important and both sexes have equal rights and responsibilities (Masacarenhas et al. 2010). The two extreme side of M/F may create different findings in terms of coping with difficulties and need of getting power and developing, by putting inter-personal relations and a healthy communication in difficulty (Mearns and Yule 2009). Studies show that M/F may affect safety culture to some extent. For instance in studies examining the effects of national culture on determining organizational safety (Tharaldsen et al. 2010) it is claimed that masculine cultures have a more calculative approach rather than femininity.

In Hofstede's study (1980), in masculine cultures, "respect" is mainly needed. Author explains this theoretically with the necessity of individuals' realizing their responsibilities towards themselves in masculine cultures (Demir and Okan 2009). In conforming to safety rules or adopting safety as a culture this observation may be important. Individuals may accept obeying the safety rules personally and so feeling "safe" themselves as personal responsibility. In masculine cultures, adaptation of safety culture easier can be predicted moving from here.

Although not directly related, some studies may help in understanding the relation between M/F and safety culture. For instance in a study that examines the preferences of individuals on benefitting from life insurance from different cultural backgrounds, made in 1976- 2001 by benefitting from Hofstede's cultural dimensions covering 41 countries it is claimed that M/F have powerful and negative effects on having life insurgency (Chui and Kwok 2009).

Moving from explanations above, M/F dimension is closely associated with risk perception as a dimension of safety culture/climate. Especially in masculine societies, individuals' desire to feel themselves "safe" because of their high personal responsibilities may result in their avoiding from individual safety risks as much as they can. This means they may behave much cautious and comply with rules and procedures that will provide them safety. In masculine cultures, instead of caring of others', individual success, development and getting material benefits are remarkable values that shape the behaviours. For individuals from feminine cultures, it will be prior to give value to the human beings and relations and care others' health and safety (Mearns and Yule 2009). Employees who come from feminine culture evaluate providing environmental health, workplace safety and colleague's safety in the same responsibility conscious, not only related to their own safety.

In order to determine an efficient safety culture in organizations, superiors should have different approaches towards individuals from M/F backgrounds. For instance, for employees from masculine societies, management

assure to fulfil their expectations and giving information about safety concerns will be beneficial since they will be more demanding in providing their personal safety. In the organizations which individuals from feminine cultures are dominant, trying to persuade employees about providing society's and environment's safety as much as their personal safety by management will be more influential on safety performance. On the other hand, for masculine employees, in increasing their safety performance giving career development chance and extrinsic rewards be gained depending on their individual contributions can be efficient motivational tools. Feminine culture members will satisfy with the increase of organization's positive safety outcomes and gained organizational awards more than individual awards on safety performance. So, announcing the safety success of organization's as a whole via various visual, auditorial and virtual tools will be more efficient in feminine cultures.

In Figure 5 below, the relation between M/F and safety culture/ climate can be seen in diagnosis:

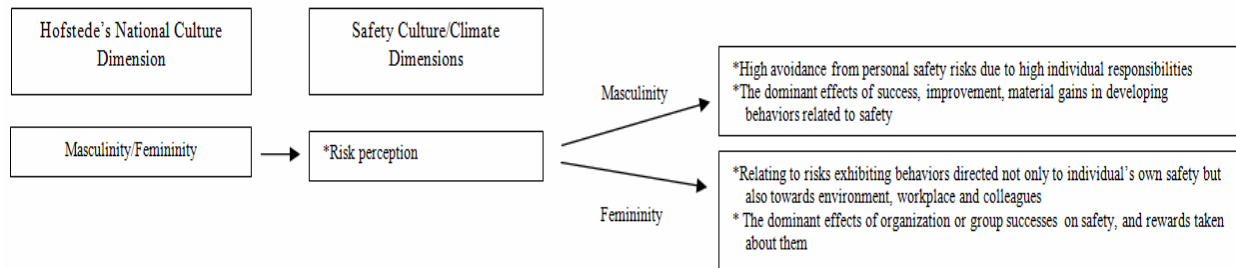


Figure 5. Relationships between masculinity/femininity dimension and safety culture/climate dimensions

Discussion and Conclusion

Generally in the world, because safety began to take place as a remarkable concern, it highlighted the factors that are significant in providing and sustaining safety. In this context, determining and extending safety culture as a sub culture of organizational culture began to be emphasized more. All members of organization's perceiving "safety" as an important and common value; making necessary efforts individually and as a group in order to provide safety in the workplace; exhibiting attitudes and behaviours in compliance with safety management system's rules, standards and procedures are not only the concrete indicators of an efficient safety culture but they also affect reducing the negative safety outcomes (accidents, injuries, loss of labour and time etc.) and increasing safety performance.

On the other hand, in establishing and settling safety culture the role of national culture is undeniable. Because employees will have the dominant attributions of their own national culture, it is -to some extent- clear that they will reflect these to their perceptions, attitudes and behaviours about safety. In related literature theoretical and empirical research about this subject is continuing and this relation is examined with various aspects. Especially, Hofstede's national cultural dimensions -PD, UA, I/ C, M/ F and long- term orientation- are the most seen dimensions in literature.

In examining the relation between safety culture and national culture, the basic dimensions of safety culture should be considered as well. In literature it is seen that there are various different classifications on these dimensions; on the other hand safety culture and safety climate show similarities and used in the same content in many writings. In this study, the highlighted and most commonly used three dimensions - management's commitment to safety, employee's involvement and risk perception- are taken into evaluation since they can be closely linked to national cultural dimensions.

In making relation with Hofstede's national cultural dimensions and safety, aspects that can be interrelated mutually by using theoretical and empirical studies' findings are put forward. In this context, national cultural dimensions - apart from the 5th dimension- are linked to some of the safety culture/ climate dimensions directly and closely although with some, this relation cannot be established. In the study, there are direct and close relations between PD and employee's involvement; UA and management commitment to safety and risk perception; I/C and employee's involvement and risk perception; M/F and risk perception. In the literature, because there is no relation seen between LTO and safety culture/ climate and no link could be made in terms of their attributions, this dimension was excluded.

The main result of this study, Hofstede's four national cultural dimension's - PD, UA, I/ C, M/ F- are effective from different aspects on employee's perceptions, attitudes and behaviours towards safety. Because every dimension can be covered in two opposite sides, these sides show opposite characteristics with each other. For instance, high PD cultures will greatly differ from low PD cultures related to safety in terms of their perceptions, attitudes and behaviours. So, the main concern here in determining and settling safety culture in organizations is conforming the

national cultural dimensions to safety culture and climate dimensions. In this context, steps that will be followed in every level of safety management process that forms the basis of safety culture should be shaped in compliance with related national cultural dimension. For instance it is seen that "risk perception" is the most related dimension with national cultural dimensions within safety culture/climate dimensions. Thus, to establish an efficient safety culture for employees from different cultures it should be understood that safety risks are not perceived in the same way and training and communication activities should be prepared and sustained in this content.

Although Hofstede's study is still the most accepted one in terms of the relation between national culture and organizations, there are some critics towards it in the literature. Because the classification depending on Hofstede's research has concluded 30 years ago, some sources question the validity of its hypothesis today. For instance, Robbins and Stylianou (2010) claims that global developments in social and economical content since the study was made, has made the study's validity questionable. Again according to some authors, focusing on national culture may cause ignorance of behavioural diversity emerged in the society priority. More than that, taking national culture as a reference, cannot explain this diversity thoroughly. These authors pointed out the existence of similarities among societies as well (Gaenslen 1986; (4). On the other hand, it is claimed that the mean scores of Hofstede's findings would tell us nothing about variability within each nation, nor would it tell us whether the particular individuals whom we sampled are typical or atypical of that culture (4).

There are some authors who suggest that Hofstede's model will give more meaningful and valid results in some cultures. For instance, Aziz et al. (2008) claimed that his model is very beneficial in understanding Western cultures but in such evolving cultures as India, China and Africa, the role of national culture requires more comprehensive models in the subject of complying with modern technology. Al-Yahya (2008) in his research, states that using "nation" as the unit of analysis by national cultural measures may not have enabled to fully capture organizational and personal variations and influences of individual contextual factors related to differences among employees (such as ability, demographic profile and willingness to participate). So, the most remarkable limitation of this study is the unilateral vision that examines safety culture in organizations merely from Hofstede's national cultural dimensions framework. In the coming years, other dimensions should be taken into consideration while examining the relation between safety culture and national culture.

Another concern is the exclusion of factors other than national culture in determining safety culture in this study. In literature, according to some research that compare the effects of national culture and other factors on safety, it is suggested that more proximal influences such as perceived management commitment to safety and the efficacy of safety measures exert more impact on workforce behaviour and subsequent accident rates than fundamental national values (Mearns and Yule 2009).

Future Research Directions

Lastly, it can be argued whether chosen safety culture/climate dimensions are adequate in explaining the relation between national culture and safety culture. Other classified dimensions included in literature can result differently in evaluations. Although via this study, the theoretical gap towards the relation between national culture and safety culture is tried to be fulfilled to some extent, searching for the questions above in the latter theoretical and empirical studies may be beneficial:

- Do Hofstede's national cultural dimensions keep its validity as a scale in the solution of our current safety problem in the increasing culturally diverse multi-national organizations?
- How will the evaluation the concepts of "country" and "nation" separately in the framework of "national culture" result in terms of safety culture?
- How will taking cultural similarities into consideration instead of cultural differences affect cultural research?
- Can the other dimensions apart from three safety culture/ climate dimensions examined in this study be related to national culture? How?

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