How to Cite:
Salajegheh, S., & Maazallahi, A. (2021). Creation of an appropriate safety climate in steel plant construction projects. *International Journal of Health Sciences*, *5*(S2), 833–848.
https://doi.org/10.53730/ijhs.v5nS2.13885

Creation of an appropriate safety climate in steel plant construction projects

Saghar Salajegheh
HSE Office, Barsoo Engineering Company, Kerman, Iran

Ali Maazallahi
HSE Office, Barsoo Engineering Company, Kerman, Iran

***Abstract*---**Despite recent advances in technology and the enforcement of occupational health standards and safety measures, construction projects, especially the steel plants construction projects, still pose construction workers to multiple risks and accidents given the high volume of workload and fast rate of tasks delivery. According to the recent reports, the construction industry has the highest rate of accidents among other industries, which are the most serious in terms of the severity of damages. The safety climate acts as a reference framework for personnel to perceive the safety measures in the workplace and make their behavior compatible with them. Despite numerous studies performed on safety climate, few efforts have been made to investigate the formation of safety climate. To identify safety climate indexes, a descriptive-analytical study was conducted based on the previous studies and their findings and the results were performed to form a safety climate and then the safety atmosphere was studied among the employees of a steel project. For this purpose, a questionnaire consisting of 43 questions with the 7-point Likert scale was developed. Among the factors investigated in this study it was found that two factors, i.e., safety participation of employers and organizational climate of projects, remarkably influence the safety climate. Research shows that there is a quantitative and qualitative relationship between safety atmosphere and safety performance. The organization could create an active safety culture by creating a positive safety climate and ultimately leads to a remarkable safety performance.

***Keywords*---**Safety climate, safety culture, construction project, safety management.

Introduction

The nature of construction projects and their delivery introduce multiple risks to the construction workers' safety (Reason 1993). Incidents that occur at construction sites not only result in the death or injury of workers but also bring about financial losses and damage the credibility of companies because of the delays in project delivery and damages caused to the equipment (Kim et al. 2019).The relatively decreasing rate of accidents emphasizes the significant role the evolution of safety measures plays in creating a safe work environment on construction sites. However, in recent years no further developments have been made in the field of work environment safety measures, which introduced the industry to even more problems in making further progress in this field (Choudhry et al. 2007).

In the past, technical measures were considered the only requirement to prevent hazards in project sites. Over time, human error in the procedure of project delivery was introduced as another influential factor. However, almost all occupational injuries deal with the interaction between individuals and the environment. Scientists currently attach great importance to individuals and the environment and their interaction (DeJoy 2005). In recent years, high-risk industries have increasingly recognized the significant role that maintaining a culture of adhering to safety measures and creating a safe environment plays in the formation of a safe workplace. Furthermore, many industries have resorted to a safety culture in an attempt to reduce accidents (Feng 2015). Safety culture is a subset of organizational culture which impacts the disposition and conduct of the employees with an establishment towards maintaining safety measures at the workplace. The safety culture is effective in the ideology and behavior of individuals. The most comprehensive way of progress to achieving a safety culture is to teach the steps that enhance safety performance. The leaders who decide to improve the safety performance have to go through the path of progress. In this regard, maintaining a climate of adhering to safety measures in the workplace remains one of the key factors in the development of a safety culture (Teo 2009). Figure 1 explains the path to safety culture development, which, as you can see, is part of the path to improving safety culture.

This article examines the process of creating a desirable safety climate in the workplace. Safety climate details the shared perceptions between the personnel and the policies, methods, and measures employed to create a safe work environment which indicates whether maintaining a safe workplace is deemed significant or considered a priority at all. Creating a climate of adhering to safety standards in the workplace is a multi-dimensional factor that can be considered an important prerequisite of safety in workplaces (Lin et al. 2008). The safety climate directly impacts the three-dimensional factors of safety culture, mental-environmental state, and conduct in the workplace (Teo 2009).

There is no doubt that safety climate and safety culture are interrelated (Lin et al. 2008). Safety climate details the beliefs individuals hold about the policies, methods, and procedures concerning safety in a workplace (Neal and Griffin 2006).It predicts the safety performance and affects individuals' knowledge, motivations, complaints, and participation (DeJoy et al. 2004).

Safety climate introduces a specific section of organizational climate which describes the individuals' understanding of the value of maintaining a safe work environment. Multiple elements contribute to safety in the workplace, including management values, management measures, communications, and interference of personnel in the safety of the workplace (Khaleghinejad; Ziaaldini 2015).

The organizational climate indicates the shared insights of the employees with an organization about the role of appropriate conduct within an organizational atmosphere. A wide range of factors, including value management (e.g., concerns of the management for the staff and their wellbeing), organizational management and conduct (e.g., education, procurement of personal protective equipment, and quality of safety management systems), and the communication and participation of the personnel in the workplace, are introduced as the most significant factors of safety climate (Silva et al. 2013).

Safety climate indicate the workers' view of the importance of maintaining safety in the organization. Based on the common factors between the definitions that were previously introduced, we can come up with a comprehensive definition: "Safety climate is a criterion for the temporary condition of safety culture and the staff's shared understanding of the organization. Therefore, safety climate is dependent upon the factors of time and space and indicates the understanding of maintaining safety standards within a specific time and space. Safety climate has a somewhat transitory nature and changes the condition of a new environment or governing conditions (Mearns et al. 2003).

The staff members of different organizations always have different perceptions of the safety climate. This difference can be considered a sign of the difference between the organizational safety culture and the success and productivity of the safety management system (Cooper and Phillips 2004).

According to the previous studies, safety climate is among the important indicators of the occurrence of accidents, which impact the safety management apparatus. Increasing the organizational safety climate is closely related to the reduction of work-related accidents in an organization. Therefore, considering the development of safety policies in organizations and improving the safety culture and climate in them can result in enhanced safety conditions and lowered levels of accidents (Abbas et al. 2013). Undoubtedly, workers' attitude towards maintaining safety climate standards, plays a mediating role within the safety management apparatus. It can also decrease the rate of work-related incidents resulting in the further development of organizational safety (Wachter and Yorio 2014).

In the const ruction project, as the facilitating agent of the project team, can achieve insight on how to build up a safe climate according to which he can put forward the appropriate safety conduct prior to the project's initiation. Safety regulations give considerable authority and, consequently, remarkable safety responsibilities to construction project managers. It is worth noting that improvement of safety can result in the success and management of a project. The role of construction project management is shown in Table One.

Furthermore, Zohar (2008) believes that organizational climate and the personnel's shared understanding of organizational policies, methods, and performances are interrelated (Dov 2008). In organizations, policies lay out the framework to achieve strategic goals and dictate the tactical instructions to conquer those objectives and methods. While performances detail the policies and trends. Since organizations define different objectives for themselves and choose various methods to achieve them, the senior management should introduce policies and procedures while taking into account each of these factors, including customer services, the quality of products, and safety measures. The related policies should be clearly defined and highly emphasized so that the employees could arrive at a consensus regarding these factors (multi-fold climatic results) (Zohar 2003; Huang and Hinze 2006). Since the customer's perspective and performance of construction projects has a significant impact on the safety of the project, the customer's role is stated in Table 1.

Given the main properties of construction projects, including management performance, construction procedure, interim project team, environmental challenges, and the performance of the person in charge of the construction site, enforcing the safety culture within a construction site must vary from the establishment of safety culture within an organization in terms of the range of the expression used and involving factors. The safety culture of a construction project includes attitudes, views, values, conduct, and notions that individuals and groups functioning in various sections of the organization (both management and staff) hold. It is formed little by little within the construction project sites. A construction project's safety culture is built, along with the formation of the project group, and is gradually developed using inputs from three fields of attitudes, values, and behaviors from the management's and work forces' perspectives (Fang and Wu 2013).

These observations are related to construction projects. For instance, a project team should define for itself definite goals, and the person who is in charge of the project should make sure that the entire staff is working towards the achievement of those goals. Since many projects are created by different groups of independent participants, a project manager should settle probable disputes and ensure that participants accept, perceive, and interpret the project goals compatibly (Walker 2015). Otherwise, the project goals would deviate toward the interests of participants (Liu and Walker 1998). For an organizational climate that has been created by innovators like Gray (2001) to be deemed supportive, the message that maintaining safety in the workplace is placed as the organization's top priority should be delivered and received effectively. Thus, the overall organizational climate paves the path for the safety climate and aids the provision of safety equipment (Schneider et el. 2011). DeJoy et al. (2004) discovered that along with environmental circumstances and safety policies and programs, the general concept of the organizational climate provides an insight into more than 50% of the conflicts that arise when it comes to maintaining a safe climate in the workplace. Furthermore, it contributes to helping the safety climate at a considerable rate, and the results stay the same even after the variables have been controlled (DeJoy et al. 2004).

Creation of a suitable safety climate

Any process collecting all levels inside an organization ultimately results in high value and known responsibilities for each individual given the cooperation to achieve the common goal. Maintaining personnel's safety and wellbeing in the work environment are within the responsibilities of the project manager to which he/she must aspire. The creation of a safety climate includes many elements. The following mentions some of the important ones (Stranks 2007).

- The commitment of the senior management: This is the first pivotal step in practice and can be proposed in a meeting of the board of directors so that the senior managers can approve and take on the commitment. The reduction in accidents can lower the direct and indirect costs, and the reduction in costs requires more attention to the changes, which needs the permanent commitment of the senior management.
- Creation of trust: To accept changes, individuals should have trust. Trust is made and improved when different levels within an organization cooperate and succeed.
- Auditing: Like an HSE expert, the person who executes this program should track the procedure through self-assessment and methods like comparative evaluations to be effective in the progress of managers.
- Education: All levels of management, representatives of the staff, members, and workers, and staff of the safety and health committee require levels of education in fields like hazard detection, legal requirements, and safety methods, as well as making relationships and creating groups.
- Executive committee: Forming the executive committee of health and safety which is initially established by a supervisor or a top manager that includes a board of management and representatives of employees and experts like senior engineers. A senior health expert organizes the committee. The committee provides instructions and a road map, and it should essentially have the proper authorities to do the tasks.
- Policy: The public adherence to the high standards of health and safety measures by the senior management improves the safety and makes it operational.
- Performance measurement: The performance measurement and report to the command committee should be done continuously.
- Report of results: The findings must be reported using various platforms including posters, information boards, and newsletters. The reports of the progress that has been made must be brought up in organizational sessions.
- Reinforcement and reevaluation: For any proposed plan, regular reinforcement, feedback, system modification, and reassessment are necessary.

The list of contributing factors in the climate safety can be found in the categories shown in Figure 2.

Research Methodology

Surveying is the main device for the evaluation of the safety climate or safety culture. Structural equation modeling (SEM) is one of the major devices for the analysis of the body of complex data. Which remains one of the latest procedures introduced for the examination of the cause and effect relationships. It details that the analysis of different variables in a theory-based body exhibits the impact of variables on each other. It can also be used to examine the suggested model according to the answers to the questionnaire since this modeling technique examines the errors of the proposed structures in the assessment of the impacts. That is why it provides more accurate estimations. This is especially important in the field of social sciences, where structures typically have a multi-dimensional nature (Guldenmund 2000).

Organizational assessments can take place both within an objective and subjective platform. In the first approach, the organizational characteristics are assessed directly without any conceptual change and in the latter, the perception of organizational characteristics is assessed indirectly. Perception directly affects a person's behavior, but they may act as alternatives; objective actions work better than their mental counterparts in proving the possibility; But their access may be restricted due to legal restrictions, the general organizational characteristics specified are not entirely immutable, because when organizational features are examined at the personal level, the relevant structure does not exhibit the desirable organizational features anymore, rather it details the individual's understanding of them. it shows. How accurate the estimations depend on whether the more importance was placed on each person or the objective condition.

Since this study focuses on safety climate, the perceptional measures of the related structures were imposed (Tuuli 2009). The measures demonstrated in Table 2 were adjusted for the construction project site and modified according to the findings of the pre-test.

In the main procedure of the survey study, printed questionnaires were sent to a random sample of 300 participants in construction projects. A total of 20 reliable answers were obtained. Table 3 lists the cross-correlations between the preferred structures on an individual level. As demonstrated in the table, the findings of the correlation coefficient emphasize the essence of the relationship shown in the initial model, which is described in detail in the following.

1) Abbreviations: SC: safety-specific concentration, SF: safety-specific formalization, SS: safety-specific standardization, SCI: safety-specific customer involvement, POC: project organizational climate, TFL: transformational leadership, CR: contingent reward, PL: passive leadership, SLMX: safety-specific leader-member exchange, STMX: safety-specific team-member exchange, IND: individualism, PSC: psychological safety climate. Other structures (e.g., collectivism and management by exception) have been removed due to their unsatisfactory structural reliability or credibility.
2) The structure of the psychological safety climate was examined based on a 7-point Likert scale.

3) P<0.1**
P<0.5*
The following results were obtained considering the calculations of the lowest p-value, indicated by * and ** in the table above, and the highest correlation coefficients (Table 4).

Results

In the discussion of project management, there are two point of view, the first one has the basis of engineering and mathematics and focuses on cases where the result is definite and its purpose is to prevent uncertainty. The second one is intellectual and rooted in the humanities and social sciences, and it is obvious that in such research, uncertainty and unreliability are components of the work principles. In order to prevent devastating accidents, we are dealing with a complex combination of factors, and since unsafe activities are the main cause of accidents, in order to reduce them, it is necessary to promote a safety culture and create a proper safety climate is one of the most important principles to promote safety culture.

Based on the approach considering the safety climate as a component of organizational climate, a default model of participants in the safety climate of construction workers was proposed based on the platform of organizational climate resources. In general, the safety climate is obtained from structural, perceptional, interactive, and cultural perspectives. The structural perspective states that the organizational structure supports the maintenance of a safety climate when it comes to safety-specific concentration, safety-specific formalization, safety-specific standardization, and customer participation in the practice of creating a safe work environment. The perceptional perspective believes that individuals' perceptions of the overall environment of an organization, including goal coordination, evaluation and identification, collective decision-making, professional development, and transparency, pave the path for the role of their perceptions of safety. The interactive perspective claims that the safety climate is created through the interplay of organizations with individuals. The cultural perspective links the safety climate to the common awareness of individual.[35,36]

In this study, we have introduced a theoretical model whose initial validation was performed using data of a survey study on a large scale on the construction staff of a steel plant construction project. The results revealed that the relationship between the contributory elements and safety climate mostly agreed with what was defined in the model, being the most significant. Significant correlations were observed between safety and psychological climate and safety specific formalization ($r=0.22$, $p<0.01$), safety specific standardization ($r=0.45$, $p<0.01$) , and customer safety participation ($r=0.50$, $p<0.01$) project's organizational climate ($r=0.52$, $p<0.01$), transformational leadership ($r = 0.23$, $p <0.01$), contingent reward ($r = 0.27$, $p <0.01$), Safety-specific leader-member exchanges ($r=0.43$, $p<0.01$) and safety-specific team-member exchanges ($r=0.36$, $p<0.01$). However, some insignificant relationships were also spotted between psychological safety climate and specific-safety focus ($r=-.00.07$, ns), avoidant / passive leadership ($r=0.11$, ns) and individualism ($r = 0.08$, ns).

Considering the calculations of the lowest p value and the highest correlation coefficients, it was concluded that two factors, customer safety participation from a structural point of view and organizational climate from a perceptual point of view, have a significant impact on the safety climate.

A significant relationship was observed between the safety climate and safety-specific formalization, safety-specific standardization, customer safety participation, the organizational climate of the project, transformational leadership, contingent reward, safety-specific leader-member exchange, and safety-specific team-member exchange. However, insignificant relationships were observed between safety climate and safety-specific concentration, passive leadership, and individualism. Given the other contributory elements within other perspectives, two factors, including safety participation of customers from a structural perspective and organizational climate from an organizational perspective, had significant impacts on the safety climate.

Discussion and Conclusion

The project as a small human community is a combination of its members, and if we want to promote this community from a safety perspective, the perspective of its small components, which are the project personnel, must be modified. Real movement in projects to create the right safety climate requires planning. Planning helps us to have a roadmap in mind before we begin, as well as to inform others of what is necessary and to help them commit for pursuing a safe climate.

Here are some steps you can take to begin the process of preparation for mediation. The sequence of work steps is based on many experiences, when new steps are taken, you should evaluate the current state of that area of performance and review it if you have an idea to improve it. The first step, which is in fact the foundation of project safety and in which project management and customer partnership is important, includes practical goals, concluding a transparent contract from a safety perspective, selecting a contractor with safety partnership and viewing the contractor's history in terms of safety principles, policy ,detection and capability are changing factors.

The second step, which requires the cooperation of the safety team and the executive committee with the project management, includes providing a safety team, establishing an executive committee, convening Subscriptions safety and implementation meetings, risk assessment and management, continuous training and project monitoring from a safety perspective and post-reporting. Establishing Safety in the First and Second Steps to Improve the Safety climate, We begin the third step, which actually institutionalizes the belief in safety in individuals, which includes commitment to safety promotion, multilevel support for personnel, two-way communication between safety team and the excutive team. Implementing, motivating people to participate in safety by creating a system of punishment and encouragement and of course in all three steps monitoring, review and continuous improvement is vital.

Funding The authors declare that this research did not receive any specific grants from funding agencies in the public, commercial, or not-for-profit sectors.

Data Availability Statements
Data generated or analyzed during the study are available from the corresponding author by request. Information on the Journal's data sharing policy can be found at http://ascelibrary.org/doi/10.1061 /(ASCE)CO.1943-7862.0001263

Acknowledgments
The authors would like to thank Barsoo Engineering Company for their logistic help during this study.

References

Abbas, R. A., Zalat, M. M., & Ghareeb, N. S. E. (2013). Non-fatal occupational injuries and safety climate: A cross-sectional study of construction building workers in Mit-Ghamr City, Dakahlia Governorate, Egypt. Open Journal of Safety Science and Technology, 2013.

Baiden, B. K., Price, A. D., & Dainty, A. R. (2006). The extent of team integration within construction projects. International journal of project management, 24(1), 13-23.

Choudhry, R. M., Fang, D., & Mohamed, S. (2007). The nature of safety culture: A survey of the state-of-the-art. Safety science, 45(10), 993-1012.

Cooper, M. D., & Phillips, R. A. (2004). Exploratory analysis of the safety climate and safety behavior relationship. Journal of safety research, 35(5), 497-512.

DeJoy, D. M. (2005). Behavior change versus culture change: Divergent approaches to managing workplace safety. Safety science, 43(2), 105-129.

DeJoy, D. M., Schaffer, B. S., Wilson, M. G., Vandenberg, R. J., & Butts, M. M. (2004). Creating safer workplaces: assessing the determinants and role of safety climate. Journal of safety research, 35(1), 81-90.

Dov, Z. (2008). Safety climate and beyond: A multi-level multi-climate framework. Safety science, 46(3), 376-387.

Fang, D., & Wu, H. (2013). Development of a Safety Culture Interaction (SCI) model for construction projects. Safety science, 57, 138-149.

Feng, Y., Zhang, S., & Wu, P. (2015). Factors influencing workplace accident costs of building projects. Safety science, 72, 97-104.

Gray, R. J. (2001). Organisational climate and project success. International journal of project management, 19(2), 103-109.

Guldenmund, F. W. (2000). The nature of safety culture: a review of theory and research. Safety science, 34(1-3), 215-257.

Hanisch, B., & Wald, A. (2011). A project management research framework integrating multiple theoretical perspectives and influencing factors. Project Management Journal, 42(3), 4-22.

Huang, X., & Hinze, J. (2006). Owner's role in construction safety: Guidance model. Journal of construction engineering and management, 132(2), 174-181.

James, L. R., & Jones, A. P. (1974). Organizational climate: A review of theory and research. Psychological bulletin, 81(12), 1096.

Khaleghinejad, A., & Ziaaldini, M. (2015). Relationship between employees' safety climate and safety performance with respect to mediating effect of safety

knowledge and safety motivation in Sarcheshmeh copper complex. Health and safety at work, 5(4), 69-86.
Kim, N. K., Rahim, N. F. A., Iranmanesh, M., & Foroughi, B. (2019). The role of the safety climate in the successful implementation of safety management systems. Safety science, 118, 48-56.
Koh, T. Y., & Rowlinson, S. (2012). Relational approach in managing construction project safety: A social capital perspective. Accident Analysis & Prevention, 48, 134-144.
Lin, S. H., Tang, W. J., Miao, J. Y., Wang, Z. M., & Wang, P. X. (2008). Safety climate measurement at workplace in China: A validity and reliability assessment. Safety Science, 46(7), 1037-1046.
Liu, A. M., & Walker, A. (1998). Evaluation of project outcomes. Construction Management & Economics, 16(2), 209-219.
Mearns, K. J., & Flin, R. (1999). Assessing the state of organizational safety—culture or climate?. Current psychology, 18(1), 5-17.
Mearns, K., Whitaker, S. M., & Flin, R. (2003). Safety climate, safety management practice and safety performance in offshore environments. Safety science, 41(8), 641-680.
Moran, E. T., & Volkwein, J. F. (1992). The cultural approach to the formation of organizational climate. Human relations, 45(1), 19-47.
Neal, A., & Griffin, M. A. (2006). A study of the lagged relationships among safety climate, safety motivation, safety behavior, and accidents at the individual and group levels. Journal of applied psychology, 91(4), 946.
Neal, A., Griffin, M. A., & Hart, P. M. (2000). The impact of organizational climate on safety climate and individual behavior. Safety science, 34(1-3), 99-109.
Reason, J. (1993). Managing the management risk: New approaches to organizational safety. Reliability and safety in hazardous work systems, 7-22.
Schneider, B., Ehrhart, M. G., & Macey, W. H. (2011). Organizational climate research. The handbook of organizational culture and climate, 29, 12169-012.
Sense, A., & Fernando, M. (2011). The spiritual identity of projects. International Journal of Project Management, 29(5), 504-513.
Silva, S., Araújo, A., Costa, D., & Melia, J. L. (2013). Safety climates in construction industry: Understanding the role of construction sites and workgroups. Open Journal of Safety Science and Technology, (4), 80-86.
Stranks, J. W. (2007). Human factors and behavioural safety. Routledge.
Teo, E. A. L., & Feng, Y. (2009). The role of safety climate in predicting safety culture on construction sites. Architectural Science Review, 52(1), 5-16.
Thomas, J. L. (2000). Making sense of project management: Contingency and sensemaking in transitory organizations.
Tuuli, M. M. (2009). Empowerment and control dynamics in project teams: A multilevel examination of the antecedents and job performance consequences.
Wachter, J. K., & Yorio, P. L. (2014). The mediating role of workers' climate and behavioral perceptions on safety management system performance. Open Journal of Safety Science and Technology, 4(02), 84.
Walker, A. (2015). Project management in construction. John Wiley & Sons.
Wallace, J. C., Popp, E., & Mondore, S. (2006). Safety climate as a mediator between foundation climates and occupational accidents: A group-level investigation. Journal of applied psychology, 91(3), 681.
Zohar, D. (2003). Safety climate: Conceptual and measurement issues.

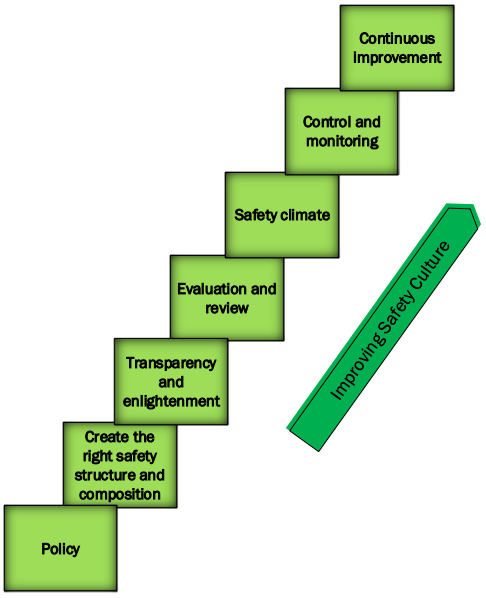
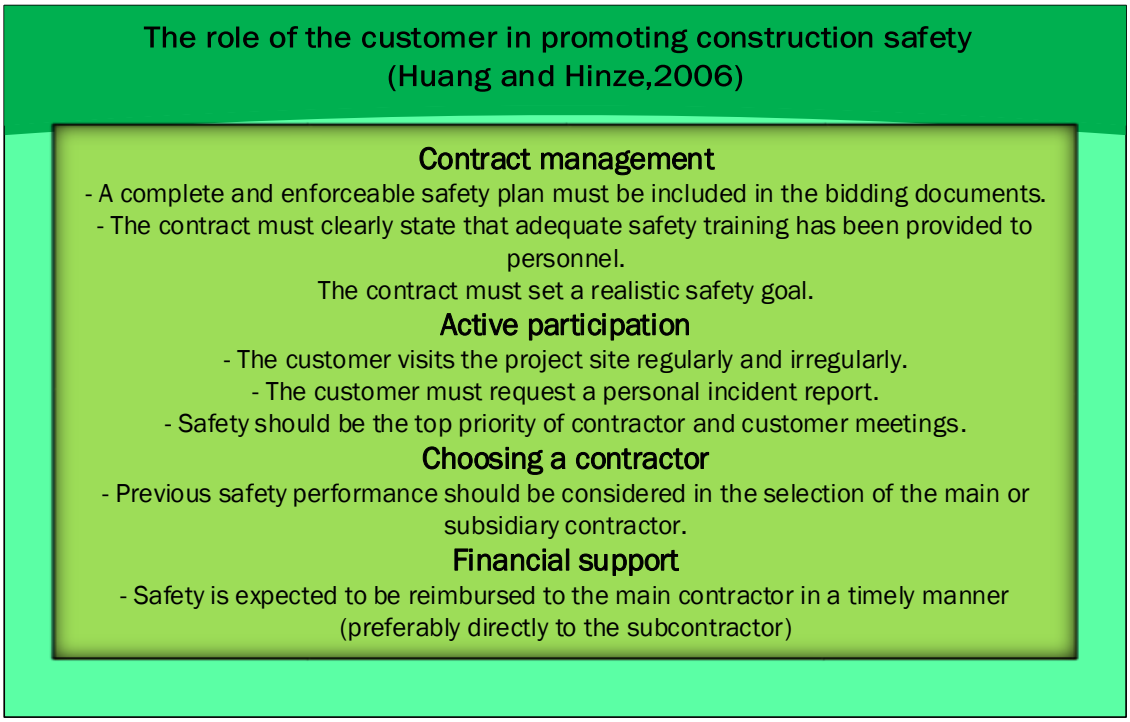


Fig.1. The path of creating a culture of maintaining a safe environment in the workplace

Table 1. The role of customer in promoting construction safety



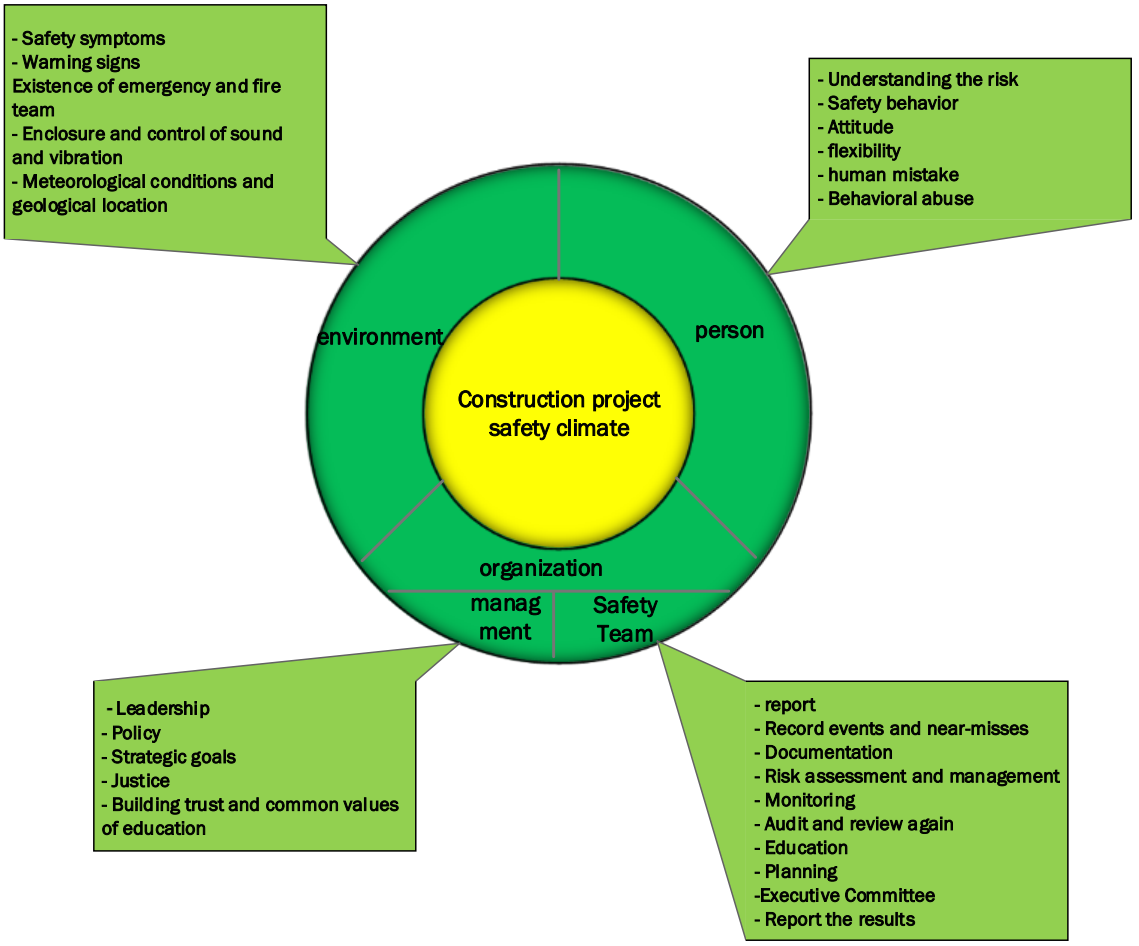


Fig. 2. List of construction project safety climate

Table 2. Criteria for building a safe climate

Criteria for building a safe climate	
Structure	**Description**
SC safety specific centralization	Decisions based on safety issues
SF safety specific formalization	There are safety methods and laws organizations must adhere to
SS safety specific standardization	Safety methods and laws are clearly defined and religiously followed
SCI client safety participation	The impact of the prospects in safety management
POC project organizational climate	How is the feeling in working on the project?
TFL transformational leadership	Leadership style of direct observers
SLMX Safety specific leader-member interaction	Making small talk and connections between the participants in the test and the observer about safety information
safety specific team-member STMX -interaction	Making small talk and connections between the participants in the test and their peers
IND-individualism	Is the project's attitude individualistic or collectivist?
PSC psychological safety climate	How does one feel about safety measures in the project?
CR contingent reward	Safety is effective in rewarding
PL passive avoidant leadership	Leadership response and performance towards safety

Table 3: Internal correlation between relevant structures

Internal correlation between relevant structures	Cronbach's alpha	Average	S.C	S.F	SS	CSI	POC	TFL	CR	PL	SLMX	STMX	IND	PSC
S.D	0.797	0.299	0.066											
S.F	0.767	0.414	0.0297**	0.065										
SS	0.837	0.43	0.079	0.0574 **	0.063									
CSI	0.868	0.489	-0.0004	0.0263 **	0.0433 **	0.061								
POC	0.833	0.452	-0.0103	0.0194 **	0.0401 **	0.0274 *	0.05							
TFL	0.807	0.439	0.0114	0.0134 *	0.0268 **	0.0093	0.0281 **	0.06						
CR	0.863	0.425	-0.0117 *	0.004	0.0256 **	0.0103	0.0463 **	0.0494 **	0.077					
PL	0.768	0.406	0.076	0.0066	0.012 *	0.0089	0.0124 *	0.0243 **	0.0122 *	0.065				
SLMX	0.81	0.466	-0.0115 *	0.0142 *	0.034 **	0.023 **	0.0583 **	0.0483 **	0.0641 **	0.0141 *	0.059			
STMX	0.841	0.411	0.0058	0.0168 **	0.0353	0.0297 **	0.0485 **	0.0304 **	0.0428 **	0.0157 **	0.0426 **	0.053		
IND	0.809	0.401	0.0177 **	0.006	0.0008	-0.0064	0.0122 *	0.0098	0.0111	0.0057	0.0146 *	0.0112	0.059	
PSC	0.791	0.547	-0.0074	0.0217 *	0.0449 **	0.0504 **	0.0519 **	0.0227 **	0.0271 **	0.0105	0.0428 **	0.0358 **	0.0081	0.05

Table 4: Results

Internal correlation between relevant structures	Average	S.C	S.F	CSI	POC	TFL	CR	PL	SLMX	STMX	IND	PSC
PSC	0.547	-0.074	0.0217*	0.0449**	0.0504**	0.0519**	0.0227**	0.0105	0.0271**	0.0428**	0.0358**	0.0081