Identification of Construction Project Organization Environment Factors of Psychological Empowerment Based on Grounded Theory

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Abstract. This paper utilized Grounded Theory research method then collected data and information through text analysis and depth interview. By triple encoding such data and information and finally concluded four factors of construction project organization environment that affect psychological empowerment and evaluated on them. The study shows that leader trait, including leadership ability, leadership experience and leadership style, organization system, including organization formalization and organization centralization, team climate, including emotional climate, relationship climate and spiritual motivation, and organizational support, including human resources support, material resources support and information resources support are the four construction project organization environment factors that affect psychological empowerment.

1. Introduction
An important factor in the organization is psychological empowerment of workplace employees[1]. Psychological empowerment has an important impact on employees’ action, work attitude and performance of the organization[2]. Psychological empowerment of employees has a great correlation with their organization environment[3]. The construction project team is the main body of construction enterprise construction project management. The level of work enthusiasm of construction project team employees and the quality of work quality will largely affect the final implementation of the project. The construction project has a long span of time and involves many influencing factors. The environment of which is complex and affects employee’s psychological empowerment. To achieve the purpose of improving the quality of work and working attitude of employees, scholars mostly consider strengthening psychological empowerment from their own perspective but neglect the influence of environment factors on psychological empowerment[4].

There are a lot of theories on the research of organization environment factors. Ma and Cao[5] divided the organization environment into three factors: the consistency of organizational goals, organizational cohesion and sense of organizational support. Lei[6] believes that the internal environment of the organization includes two major factors: mechanism factor and cultural factor. Mao[7] pointed out that the organization environment of construction companies is a complex system that includes three factors: organization structure, control system and social relations. Chen[8] divided the organization environment affecting project cost management into construction ability, procurement system, organization structure, and technical management personnel. Wang[9] divided the internal
environment of the organization into three factors: physical environment, cultural environment and psychological environment. Researchers analyzed the factors of the organization environment from different perspectives and different organizations but there is no uniform definition of its factors. The organization environment is attached to a specific organization and different natures of organizations in different industries naturally exist different environment factors. The organization environment is a complex system that is controlled and interdependent by many factors within the organization. Therefore, it is difficult to make a clear and unified definition of the factors involved in the organization environment.

The purpose of this paper is to explore the organization environment factors that affect psychological empowerment. Because the fact that the existing papers rarely involve the project organization environment to research the impact on psychological empowerment. And Chinese construction projects have rich practical experience. Therefore, this study chooses the grounded theory research methods to excavate the project organization environment factors that affect psychological empowerment. It provides theoretical basis and textual data for the future research, which has a certain theoretical significance.

2. Data collection and category refinement

2.1. Data collection and organization

In order to ensure the richness of research data sources, this study uses the following two ways to collect data:

(1) Text analysis. Text analysis is an important way of data collection in qualitative research. This paper uses the following ways to obtain text data: Searching for papers take the topics of “Psychological Empowerment” or “Organization Environment” in CNKI, ESD full-text database, EBSCO full-text database, JSTOR database and Baidu academic website, and extract related content of organization environment and Psychological Empowerment through literature analysis and searching on Baidu or Google for psychological empowerment and organization environment related content.

(2) Depth interview. In order to ensure the validity of the interview, this interview requires that the respondent must be related professionals in the construction industry. The project team of the interviewee has been running for a certain period of time. In this study 25 employees were finalized, covering team members of different ages and job types. Interviews were semi-structured and sent emails to interviewees one week prior. Interviewees were free to answer the relevant questions according to pre-set questions, and did not make requirements for the time of the interviews. Interviews are stopped when interviewers do not capture useful information. A total of 25 samples were obtained from the interviews, of which 20 samples were used for theoretical studies and the remaining 5 samples were used for theoretical saturation test. The sample data were all collated and integrated to ensure the accuracy of the sample data.

2.2. Category mining and refining

2.2.1. Opening Coding

The first step in coding data is opening coding. The main purpose is to conduct primary analysis of the data and to conceptualize and categorize a large number of interview data based on certain principles. The specific performance: (1) Extracted concepts from the original sentences. That is, analysis the sentences and paragraphs in the original data and conceptualized the relevant contents. (2) Express the concept as a subcategory. That is, centralize the same or similar concepts and unify them under the corresponding category. (3) Substantive subcategories. Through the above three steps, 103 concepts and 25 subcategories were finally obtained. Due to the limitation of space, the concepts and the subcategories was not listed in all numbers. Only partly shown in Table 1:
| Subcategory                  | Connotation of the subcategory                                                                 |
|-----------------------------|-----------------------------------------------------------------------------------------------|
| job match                   | Authorizing firstly depends on whether employees are suitable for this matter.                |
| emotional harmony           | What the organization gives is a kind of home feeling. It has the help and encouragement        |
| leadership                  | Leadership level of knowledge will affect leadership empowerment. Leaders with high level       |
| knowledge                   | of education will be more open-minded and prefer new things.                                   |
| experience leadership       | Whether or not predict various factors when authorize, these will affect the                   |
| leadership                  | authorization of the leadership, and the poor predictability will hinder the authorization.     |
| democracy                   | Leaders are more open-minded, and far-sighted. They will not consider things for their         |
| close to employees leadership| Leaders can communicate with subordinates in timely. Subordinates frequently make mistakes.    |
| decision-making ability     | Leaders understand the technology, equipment, substances, etc. related to project management.   |
| communication skills        | When dealing with external relations (owners, designer, supervisor), they can negotiate         |
| trust                       | The supervisors have strong working abilities. The employees trust him very much.              |
| cooperation                 | For the authorization of the superior and members will communicate and collaborate to          |
| punishment system           | The organization distributes housekeeping fees and project allowances on a regular basis.      |
| benefits                    | The organization system is sound and the project safety management regulations to                |
| perfect system              | The approval of many documents needs to be led by several departments. There are many         |
| process tedious             | When an authorized employee commits an error, the penalty system is not so serious and it will  |
| system constraints leadership| Leaders don’t blame but talk and listen to his feelings.                                      |
| dictatorship                | The superior authorizes the use of suggestion tone and actively communicates with the subordinates. |
| decentralization            | The superior authorizes the use of suggestion tone and actively communicates with the subordinates. |
| active action               | I am commended for my work on the project and I am recognized by my colleagues, I am proud   |
| model                      | There are few team members, and many tasks can’t be done. It always causes overtime work, and   |
| inspiration                 | The team is composed of members with different genders and ages and can produce                 |
| team size                   | The company provides genuine Guang Lianda, SVill software, and supports the use of Cc-project  |
| team cohesion               | The company provides genuine Guang Lianda, SVill software, and supports the use of Cc-project    |
| convenient information      | At the time of authorization, substance rewards such as performance awards, season              |
| software use                |                                                                                               |
| reward                      |                                                                                               |
awards, and year-end awards will be more conducive to the completion of tasks. Some teams have everything to do with deployment and subordinates to obey, which limits the ability of employees to play.

2.2.2. Axial Coding
The concepts obtained in the opening coding are basically independent. By finding the correlation between independent concepts in the opening coding, a more generalized category is formed[10]. By further classifying, the subcategories with similar expression meanings are grouped into one category, the main category is formed and named, and the 25 subcategories are integrated according to their respective linkages to 11 main categories and detailed in column 3 of Table 2.

2.2.3. Selective Coding
Selective coding is to systematically link the core category with other concepts or categories, and further explore the new connotations of the categories to form a relatively full theory. This paper finally integrates 11 main categories into 4 sub-core categories through the correlations between the main categories and sub-categories. The results are shown in column 2 of Table 2. Through continuous comparison of concepts, subcategories, main categories, and sub-core categories, finally, it extracts the core category of “construction project organization environment factors of psychological empowerment”.

| Table 2. The result of Axial Coding and Selective Coding |
|------------------------------------------------------------|
| | core category | sub-core category | main category | sub-category |
|------------------------------------------------------------|
| construction project organization environment factors of psychological empowerment | leader trait | leadership ability | leadership decision-making ability, leadership communication skills, job match |
| | leadership experience | leadership knowledge, leadership experience |
| | leadership style | close to employees, leadership democracy, leadership dictatorship |
| | organization system | organization formalization | perfect system, system constraints, punishment system |
| | organization centralization | decentralization, process tedious |
| team climate | emotional climate | trust, emotional harmony |
| | relationship climate | cooperation, active action |
| | spiritual motivation | model inspiration, power enhanced |
| organizational support | information resources support | software use, convenient information |
| | material resources support | benefits, reward |
| | human resources support | team cohesion, team size |

2.2.4. Theoretical saturation test
In order to test the credibility of the grounded theory coding, we studied the opening coding, axial coding, and selective coding of the five sample data that were not entered. We found no new concepts and categories in the coding analysis process and no new relationships were generated. Therefore, it is believed that the theory meets the saturation test requirements.
3. Grounded results analysis

(1) Leader trait. Leader trait include leadership ability, leadership experience and leadership style. Leadership ability refers not only to the leadership ability to master professional knowledge, decision-making and communication, but also to the ability to control authorized actions. Construction projects have long time spans and many influencing factors. Leaders must master related professional skills and have the ability to handle emergencies, communicate and coordinate all participants, and can authorize complicated tasks to the right people. Leadership experience refers to the knowledge, skills, and expertise gained in multiple practical activities and influences followers with this charisma. Experienced leaders can predict various factors when they are authorized. Leaders do not authorize if there are risks. Leadership style is the behaviour-pattern gradually formed by leaders in their long-term personal experiences and leadership practices. During the interview, it was found that democratic leaders are more willing to authorized and give employees opportunities to grow. Subordinates are more willing to accept authorization. And dictatorial leaders tend to control the overall situation with little authorization.

(2) Organization system. Mainly include organization formalization and organization centralization. Organization formalization reflects the degree of soundness of the organization’s rules and regulations and the degree of restrictions imposed on the members by the rules and regulations. The organization system is sound, the safety management is standardized, and the employees are highly motivated. The team members are more willing to accept the superior’s authorization. If there are many constraints on the system and the punishment system is serious, the enthusiasm of employees will be impaired. Leaders will not like to authorize subordinates, and subordinates will not like to accept authorization. Organization centralization reflects the degree to which the organization’s decision-making authority and distribution authority are concentrated at the upper level. The centralized construction project team has too many standardized operating procedures and formal rules. The procedures are cumbersome. Leaders maintain a high power distance and are unwilling to authorize subordinates, which eliminates subordinate work initiative. Discovered during the interview decentralization can increase employees’ inspiration. Leaders don’t like the style of request for everything, so long as they think that there is a correct way they can do it. Therefore, the employees are very active.

(3) Team climate. Mainly include emotional climate, relationship climate and spiritual motivation. Relationship climate refers to the friendly relationship between team members formed by the team’s communication behavior. The relationship between team members is divided into the relationship between employees and the relationship between employees and superiors. The superiors authorized subordinates and subordinates have their own responsibility and also communicating and collaborating with each other to complete the leadership authorization tasks. The result of mutual cooperation among employees is to increase the efficiency of authorization. The interviews found that if the leader authorized with a proposed tone and actively communicated with the subordinates, the subordinates would actively propose opinions and suggestions. Emotional climate refers to mutual trust between team members and mutual encouragement and support. When the team gives employees a sense of home, and when they can get encouragement from their leaders and colleagues during their work, the employees are more willing to accept the initiative. Spiritual motivation refers to meeting employees’ high-level spiritual needs such as respect, achievement, and self-realization. The team pays attention to the spiritual needs of employees and gives recognition or promotion opportunities timely. The staff will always pay attention to the best of themselves and set an example for newcomers.

(4) Organizational support. Mainly include information resources support, human resources support, material resources support. Human resources affect the knowledge, intelligence, and skill structure of the project as well as related to the implementation of the project. The organization’s human resources are determined by team size and the team cohesion. The number of team members is insufficient, and it is no person to authorize. Overtime work causes employees increased the complaint emotions and inefficient authorization. Data sharing within the team, even there are channels to obtain information resources from outside the team, psychological empowerment of employees are increasing[11].
4. Research conclusions and limitations

4.1. Research conclusions
This paper uses grounded theory research methods, through the triple coding, and finally obtains the project organization environment factors that affect psychological empowerment. It provides theoretical basis and textual data for the future research, which has a certain theoretical significance. Concluded as follow: (1) This study obtains 11 main categories and four sub-categories by coding analysis. That is leader trait, organization system, team climate and organizational support. They are the four factors of project organization environment that affect psychological empowerment. (2)This study obtains the core category “construction project organization environment factors of psychological empowerment” and unified other sub-core categories.

4.2. Research limitations
Due to the limitations of time, efforts and resources, this paper has some limitations. Although a large number of preliminary preparations were conducted for the reliability and authenticity of the interview results, the interviews were time-consuming, so only 25 construction project team members were interviewed and the number of samples was relatively small. To the extent that the accuracy of the coding results is affected, subsequent studies can increase the number of samples and improve the accuracy of the results. The research method of this paper is based on qualitative research and has a strong subjectivity. The influencing factors and the relevance of the influencing factors involved in the study have not been verified. In the following research, the factors of organization environment that affect psychological empowerment should be empirically analysis. Using quantitative data to explore the relevance of every factor and make up for the lack of qualitative research analysis.

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