

Research on Project Team Building and Talent Development Based on Tuckman Model

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Abstract: Team building is an important element of human resource management in project management. An effective team, a learning team with a strong collaborative spirit and self-drive, plays a vital role in the success or failure of a project. Talent development can help organizations to get the right people at the right time in the future and can help them to continue to change and innovate and grow. Combining 'well engineering' talent development with project team building enables the building of project teams and the development of talent with both theoretical and practical experience within the cycle of an engineering project. The Tuckman model of project team building, combined with the mentor-apprentice model and the project-based learning training model, is therefore used to build a project team building and talent training model based on the Tuckman model.

Keywords: Team Building; Talent Development; Tuckman Model; PBML

1. Overview

1.1 Well Engineering Talent

The well engineering talents are the professional and technical personnel with deep academic attainments and good quality, who can see the direction of professional development and have the ability to innovate, who are openly recruited in the fields of petroleum geology, geophysical exploration, development geology and oil and gas reservoir engineering in scientific research, oil and gas production and construction operation units in accordance with the principle of "openness, equality, competition and merit". They are the leading talents to ensure oilfield exploration and development to increase reserves and production. ^[1]

1.2 Well Engineering Project Team

The well engineering project team is built on existing projects and consists of a group of professional and technical personnel with certain academic attainments and good qualities in the fields of petroleum geology, geophysical exploration, development geology and oil and gas reservoir engineering, who are able to see the direction of professional development and have the ability to innovate, to work together in order to ensure oilfield exploration and development to increase reserves and production, and to share the responsibility and the final results. ^[2]

1.3 Master-apprentice System

The mode of teacher-apprentice system, that is, the teacher and apprentice to take the principle of voluntary, equal, free pairing, to achieve the "master willing to take, apprentice willing to learn" purpose, the formation of "a teacher more apprentices" or "an apprentice more than one teacher" mode, experienced veteran staff combined with the apprentice's foundation and their own characteristics, to develop different training plans, training objectives, assessment content, and timely adjustment according to the stage of learning, theory combined with practice, live and learn. The master in the process of leading the apprentice teaches by example, effectively passing on his or her one skill to the apprentice, which can solve the contradiction between the urgent need for personnel to cover the job

and the difficulty of newcomers to get started.

2. Related Theoretical Models

2.1 Tower Model of the Promotion Sequence

There have always been two traditional basic paths for the promotion of petroleum unit personnel: one is to take a management position and slowly promote to department head or deputy head over time; the second is to take the path of professional technical title promotion, where each professional and technical person can apply for a number of titles at the senior, deputy senior, intermediate and assistant levels according to their own working years and qualifications. However, with the development of society and changes in social attitudes, some institutional flaws have led to serious seniority and lack of internal dynamism in many petroleum units, and young people in the units do not see any hope for upward mobility in such an atmosphere. After more than a decade of development, the problems associated with talent development have become increasingly evident; the redundant and inefficient management processes of state-owned enterprises, the many transactional tasks, the arbitrary nature of talent selection, the lack of scientific and systematic thinking, the lack of professionalism in talent development, and the difficulty in balancing the appointment of talent are problems that undoubtedly need to be addressed. In addition, based on the opening year of the "14th Five-Year Plan", for the long-term development of the enterprise, it is necessary to constantly push the talent of the enterprise, not only needing the continuous input of external quality talents, but also needing to explore ways to continuously train and upgrade internal talents, in order to maintain the long-term vitality of the enterprise, otherwise, the internal talents of the enterprise keep losing because of losing confidence, and the development of the enterprise does not have effective external talent which will eventually make the enterprise lose its most valuable competitiveness and gradually die out. [3]

In response to this situation, a "tower" promotion sequence channel has been designed specifically for the personnel of the enterprise, the external realization of this promotion channel is a promotion ladder from one level to seven levels, open to all members, members can gradually achieve their position promotion in the comprehensive evaluation of their work performance and accumulated years of work, for example, in The professional and technical tower has seven ranks from low to high: technician staff, assistant engineer, engineer III, engineer II, engineer I, technical specialist II and technical specialist I, as shown in Figure 1.

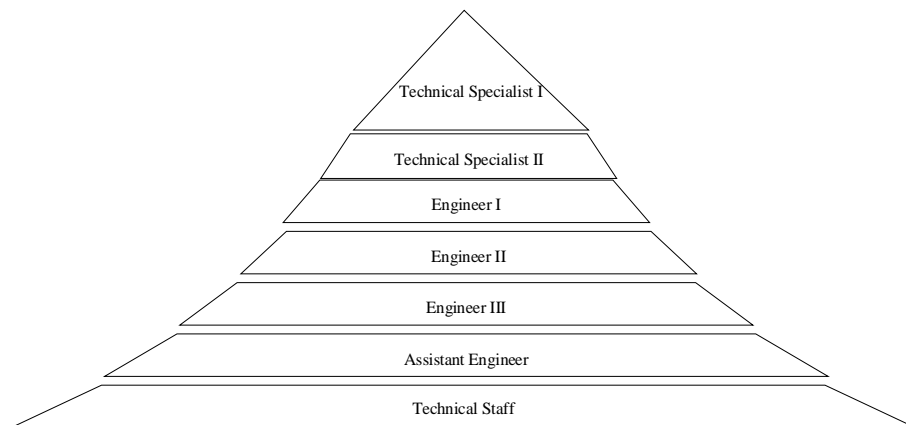


Figure 1: Specialist technical towers

In this tower of promotion, its steeple as the chief platform in the top position, designed to provide greater development space for those technical or managerial personnel with particularly outstanding performance or great contribution. The second is to build a platform for personal realization, providing a large number of opportunities for self-realization for outstanding talents and people with outstanding abilities or significant contributions. At the top of the working level, several titles of Chief, Special Chief and Professional Chief are set up respectively, and the corresponding titles are granted to provide them with the corresponding powers and treatment, so that their benchmark status and leading role in the business field can be given full play. In the promotion ladder, the performance appraisal system is implemented, in order to normally achieve the promotion and decline of the post sequence, reflecting the principle of performance first and ability first, it is necessary to decide whether the personnel is

promoted or not and the speed of promotion according to the personnel's efforts and their own high-performance level. Finally, performance first, job performance directly determines the matter of promotion at all levels of the team, abandoning the old and corrupt argument of seniority alone in the existing mechanism. Good performance and a high ranking will result in a good rating in the next round of promotion evaluations, allowing direct promotion by one level, and even successive promotions for those who are particularly good. Poor performance and a low ranking put the person at risk of demotion, regardless of his or her existing management position and professional or technical title, and a poor rating in the next round of promotion evaluations. In addition, as a result of the reform, the company's remuneration system will consist of three basic components: basic guaranteed pay, performance pay, and incentive pay. While maintaining the existing framework, the company will increase the proportion of performance pay on top of the basic guaranteed pay, and increase the incentive pay for major tasks and projects, so that job performance has a greater impact on pay, thus driving members forward and increasing their motivation.

2.2 Tuckman Model for Project Team Building Stage

Based on the Tuckman model, the construction of the entire project team is divided into five stages, namely the formation stage, the oscillation stage, the normative stage, the maturity stage and the dissolution stage^[4], as shown in Figure 2.

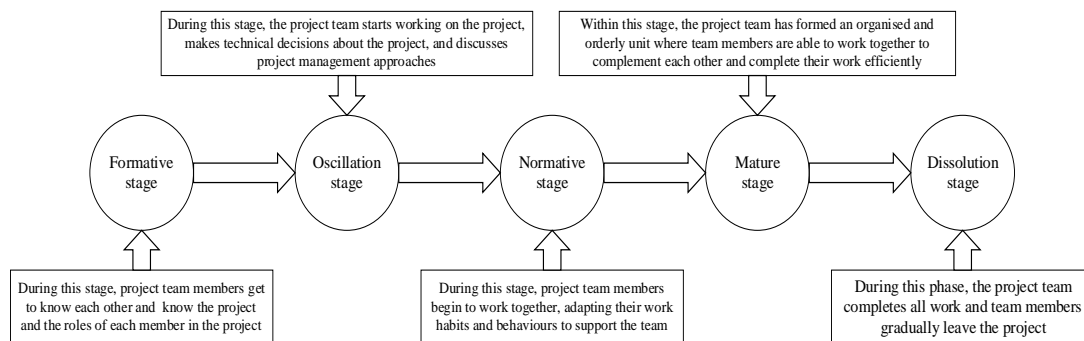


Figure 2: Tuckman team building stage model

The project formation stage, also known as the formative stage. Identifying the interpersonal and task boundaries of the team. The interrelationships of team members, the relationships between team members and team leaders, and the various team standards are established.^[5] During this period, team members behave with considerable independence and, although they are likely to be motivated, they generally lack information about the team's purpose, activities and some team members may also display unstable, apprehensive characteristics. It is important for the team leader to ensure that a trusting working relationship is established between team members as they lead the team.

The project oscillation stage. It is a situation where various ideas are formed, competing and colliding fiercely. The entire project team members initially begin to work on project-related preparations, and project experts and relevant managers begin to make technical decisions and discuss management approaches to the project^[6]. The team gains confidence in team development, but there are problems of interpersonal conflict and divisiveness. Team members are confronted with the views and insights of other members and are more interested in showing their individual personality traits.

The project specification stage, also known as the normative stage. Relevant rules, values, behaviors, methods and tools are established, team effectiveness increases, and the team begins to develop its own identity^[7]. During this stage, team members adapt their behavior to allow for more natural and fluid team development, while consciously solving problems and achieving organizational harmony.

The project mature stage. During this period, interpersonal structures become the tools for performing task activities, team roles become more flexible and functional, team energy builds up as one and the project team operates as one^[8]. Work is completed smoothly and efficiently during this stage. Team members have a clear understanding of their job responsibilities at task level. There is no supervision, autonomy, and decisions can be made on their own even without supervision.

The project dissolution stage, also known as the rest period. In this stage the project tasks are completed and the team is disbanded.

2.3 PBML Model

In view of the current situation of the mentor-apprentice mechanism and the role of the top-level experts in the design of the "tower model". From the perspective of project management, the PBML model (Project-Based Mentoring Learning Model) is proposed based on the Problem-Based learning model and the Mentoring system as the basis (in Figure 3). In this mechanism, the team organizes the completion of a project by the collaboration of two roles, namely the 'pedagogue' and the 'learner', and in this model, the completion of the project requires the completion of the pedagogical task of the 'learner' in addition to the technical task itself. In this model, the completion of a project involves, in addition to its own technical tasks, the teaching of the "learner" role.

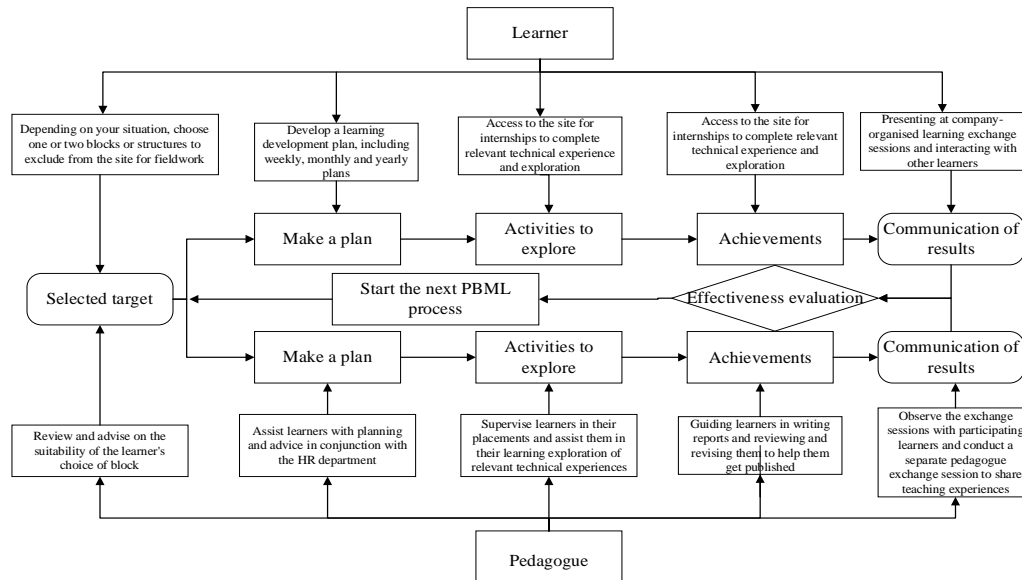


Figure 3: PBML model

PBML is a way of providing projects to members who are 'learners' in a project, and allowing the 'learners' to find problems, plan action plans, collect information, solve problems, make decisions, complete the research process, and ultimately present the project results and learning results through the implementation of the project. The components of PBML include content, activity, situation, and result, as shown in Figure 4.

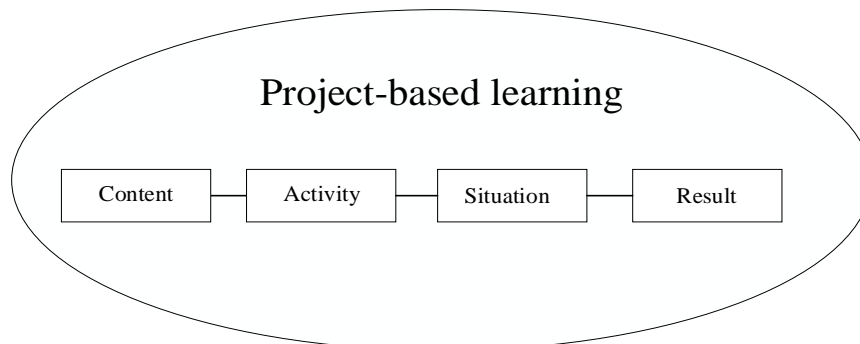


Figure 4: The four elements of PBML

3. Talent Development Process Design Based on Project Team Building

Based on the mentor-apprentice model, a project-based team building, and talent development process model is constructed in conjunction with the project expert team building stage model.

Among the five stages of the Tuckman model, the two stages of project oscillation and project maturity are the main periods of the PBML model-based "teacher-apprentice" model, where the oscillation stage is mainly for the high-level competence training of mature talents with certain experience, and the project maturity stage is mainly for the training of talents who have just entered the

unit or are The project maturity stage is mainly for the training of talents who have just entered the unit or are less experienced.

Taking the temporary project department of oil and gas fields common in the Sichuan and Chongqing areas as an example, as the Sichuan and Chongqing areas are divided into conventional gas, shale gas and other types, the drilling process, including the site, is different. When talents of a certain related profession come to the department, they are not very knowledgeable about field experience as well as professional knowledge, so according to their professional orientation, a relevant mentorship agreement is signed for them, after which they enter into the PBML process, which mainly has the following processes.

(1) Selecting a project: In this section, one or two blocks should be selected to be sent to the field for on-site practice.

(2) Development of a plan: At this stage, the 'pedagogue', the Personnel Section, and the 'learner' work together to develop his or her learning development plan, which includes weekly, monthly, half-yearly and annual plans.

(3) Exploration activities: In this stage, the "teacher" and "learner" enter the field for practice, and in the process of exploration activities, under the guidance of the "teacher" and through self-learning, they complete accumulation of relevant experience and learning of technical skills, enriching their practical experience, consolidating their technical foundation and improving their technical level.

(4) Achieving results: At the end of the activity-based inquiry phase, appropriate results should be achieved. Throughout the experimental investigation stage, according to the requirements of the learning plan, the "learners" need to obtain relevant technical results under the guidance of the "teacher" and publish relevant technical reports or write a research report to solve complex problems in the field.

(5) Exchange of results: After the completion of the internship period and the achievement of the corresponding results, the learner is required to complete a technical summary and a summary of the internship, and to present the results at the learning and exchange meeting organized by the company to complete the exchange of results. The exchange of results does not only mean that the "learners" communicate the results of their own learning, but also that the "instructors" summarize their own teaching results and share them with other "instructors". "Learning in teaching is not only to improve teaching methods, but also to summarize their own shortcomings and learn young thinking, and to complete their own progress in continuous learning.

(6) Activity evaluation: Evaluate and output results for each of the different roles taken on throughout the PBML session. For "learners", according to the number of PBML sessions they have undertaken and the results they have achieved in the PBML sessions, they will decide whether to enter the promotion channel, what promotion channel they should enter and how they should be promoted in that channel, and return to their posts or enter a new PBML process after completing the session. In the case of the "teacher", the results of the "learner" to whom the agreement has been signed are evaluated and a decision is made as to whether to give them the relevant incentive, after which the "teacher" 'The pedagogue' also returns to their post or moves on to a new PBML process.

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