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Original Paper

Analysis of the Application of X-Y Management Theory in University Engineering Consulting Project Organizations

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Abstract

This paper takes university-based engineering consulting project organizations as the research subject, identifying and summarizing their formation process and characteristics. Grounded in McGregor's Management X-Y Theory, it identifies the organizational management needs of project personnel. Subsequently, based on the management needs of organizational members and integrating Maslow's Hierarchy of Needs with the application scenarios of X-Y Management Theory, applicable models for different organizational contexts are proposed. Particularly when facing university-based engineering consulting project organizations, it is necessary to make appropriate selections and adjustments to organizational management strategies. This avoids large-scale negative risks for projects and members arising from deviations in management strategies, leading to the better achievement of organizational and project objectives.

Keywords

X-Y Management Theory, University-Based Engineering Consulting Organizations, Project management, Management strategies

1. Introduction

To promote deep industry-academia-research integration, an increasing number of faculty members in construction-related disciplines at universities are actively engaging in engineering project practices. Whether viewed from the perspective of talent cultivation or individual faculty development, such participation facilitates the conversion and sharing of explicit and tacit knowledge (Nonaka & Takeuchi, 1995), thereby enhancing the alignment between academic research and industrial demands. This initiative not only enriches teaching with cutting-edge relevance but also imbues engineering practice

with more systematic significance.

Engineering consulting project teams composed of university faculty exhibit distinct characteristics that differentiate them from conventional project teams. Consequently, management approaches for such organizations require tailored strategies. Neglecting these differences may lead to negative outcomes, such as passive member engagement and organizational inefficacy, ultimately resulting in failure to achieve project objectives or member participation goals (Li, J. H., 2024, pp. 107-109).

This paper aims to explore the core dynamics of faculty participation in engineering project practices. Using engineering consulting projects as a focal point, it analyzes the unique organizational needs of such teams and proposes management approaches grounded in X-Y Management Theory to better align with the context of university-led engineering consulting organizations (Arabian Journal of Business and Management Review, 2021, pp. 1-7).

2. Development of University-Based Engineering Consulting Project Organizations

In the early 19th century, alongside the Industrial Revolution, large-scale engineering projects such as railways, transportation networks, water conservancy systems, and civil infrastructure proliferated globally. However, due to inadequate project management mechanisms, many projects suffered from resource wastage and delays. As demand for professional project management grew, independent consulting institutions emerged to provide engineering consulting services. Typically staffed by experienced engineers and technical experts, these organizations offered technical and managerial guidance, helping clients resolve project issues while delivering rational consulting, design, and construction solutions (Cao, X. L., 2017).

In China, the involvement of university faculty from construction-related disciplines in engineering consulting projects traces back to the founding of the People's Republic of China. With the advancement of national economic development, the expertise and skills of academics in engineering construction gained broad recognition. They began participating in consulting, evaluation, and design work for diverse projects. Particularly after the Reform and Opening-up policy, as the market economy matured, opportunities for faculty engagement in engineering consulting expanded significantly.

According to "The 14th Five-Year Plan for National Economic and Social Development and the Long-Range Objectives Through the Year 2035", major initiatives such as new infrastructure, new urbanization, and transportation/water conservancy projects are integral to achieving socialist modernization. Social fixed-asset investment will maintain reasonable growth atop an already substantial scale. Concurrently, national policies encourage modern service industries and emphasize cultivating engineers and high-skilled talent. Thus, the engineering consulting sector—providing specialized services for fixed-asset investment—will retain vast market potential and robust policy support, driving sustained industry expansion in the coming years.

Recently, the concept of whole-process engineering consulting has further deepened and broadened faculty participation in such projects (Dai, X. M., 2024, pp. 115-119). This approach emphasizes comprehensive consulting and services spanning project planning, decision-making, design, construction, and operation management. It necessitates multidisciplinary knowledge and collaborative teamwork—a domain where university faculty, as talent resources with profound expertise and practical experience, naturally constitute critical components of whole-process consulting teams.

3. Characteristics of University-Based Engineering Consulting Project Organizations

3.1 Strong Self-Directed Initiative

University faculty consulting teams primarily consist of academics whose performance evaluation and administrative oversight reside with their schools or universities, while project leaders typically lack formal hierarchical authority over team members. Consequently, team formation relies more on personal commitment than organizational mandates.

Moreover, long-term immersion in academic research and teaching cultivates high self-discipline. When undertaking consulting projects, members proactively plan tasks, schedule timelines, and advance deliverables with minimal external supervision. Their intrinsic motivation ensures efficient and orderly completion of consulting outcomes.

Thus, compared to conventional project teams, faculty-led groups exhibit pronounced autonomy and self-initiation.

3.2 Proficiency in Collaboration and Innovation

These teams are driven by strong professional development aspirations. Faculty seek exposure to cutting-edge industry practices and real-world challenges to enrich teaching cases and enhance the applicability of their research. They leverage project opportunities to pioneer new research directions and elevate their careers (Qi, Y. K., 2022).

Hence, collaboration and innovation permeate all project phases. On one hand, members' academic experience fosters advanced communication skills—they articulate specialized insights clearly while actively listening to peers. This enables effective information exchange with clients and within teams, preventing misunderstandings and delays.

On the other hand, faculty from diverse disciplines (e.g., engineering, management, economics) engage in cross-domain collaboration, integrating multidisciplinary knowledge to develop holistic solutions for complex engineering problems. Beyond contractual obligations, many view consulting as a means to bridge theory and practice, sharpening their applied skills. This mindset often sparks creative approaches when tackling project challenges.

3.3 High-Level Needs Orientation

Per Maslow's Hierarchy, faculty typically satisfy basic physiological and safety needs (e.g., stable income, work-life balance) through their primary academic roles (Teng, Y. L., & Ma, C. M., 2023, pp. 74-79). Consequently, their consulting engagement centers on higher-level needs:

Social Belonging Needs: Extensive interaction with clients, interdisciplinary teams, and industry peers fulfills relational aspirations. Professional networks built through conferences and academic exchanges foster community integration.

Esteem Needs: This tier drives core motivation. Members seek recognition from clients, peers, and society for their expertise. High praise for project outcomes significantly validates their professional standing, amplifying their value contribution.

Self-Actualization Needs: As the ultimate pursuit, faculty aim to apply knowledge toward solving complex engineering problems and advancing industry innovation. For instance, when consulting on a major aviation hub project involving multiple stakeholders and multi-functional integrated spaces, pioneering solutions established industry benchmarks while fulfilling personal ideals. This quest for self-realization fuels continuous excellence.

4. Management Needs of University-Based Engineering Consulting Project Organizations

In conventional consulting projects, leaders primarily focus on managing behavioral boundaries and ensuring minimum output standards, emphasizing controlling and directive leadership styles (Zhang, R. L., Li, L., & Wang, Q., 2015, pp. 92-97).

In contrast, university faculty—enjoying elevated social status and professional respect—prioritize participatory environments that foster free discourse and personal growth.

Consequently, project leadership roles in such contexts require distinct positioning. Controlling or directive approaches often impede operational efficiency and may even trigger team dysfunction under extreme conditions.

For these organizations, management needs shift from "baseline enforcement" to "upward guidance"—transitioning from behavioral constraints to attitude- and motivation-focused positive cultivation. Leaders must therefore adopt parental, expertise-based, and mentorship-oriented roles to fulfill these elevated expectations.

5. Practical Application of X-Y Management Theory

5.1 Conventional Engineering Project Organizations—Application of Theory X

Theory X assumes negative human traits: inherent laziness, work aversion, and responsibility avoidance, necessitating external control and punishment. In engineering consulting teams, this manifests through: Centralized decision-making, Rigid rules/procedures, Economic incentives/sanctions (Stoyan, S., & Monique, D., 2017).

Project complexity, uncertainty, and resource/timeline constraints often justify centralized decisions for speed and consistency. Though limiting flexibility, this enables rapid crisis response. Strict protocols (workflows, quality standards, timelines) enforce behavioral boundaries to ensure execution efficiency.

Under Theory X, economic incentives dominate motivation drivers. Bonuses/commissions reward performance, while penalties (fines, warnings, termination) address underachievement.

5.2 University-Based Consulting Organizations—Embodiment of Theory Y

Theory Y posits positive human traits: work as natural as play, with innate responsibility-seeking and self-actualization drives.

Since faculty participation is volitional and purpose-driven, applying Theory X would invert their motivation logic, potentially causing team dissolution and project failure (Petkovska, S. M., Bojadjiev, I. M., & Blazevski, P., 2021, pp. 366-380). Thus, leaders adopt:

Nurturing | Expertise-based | Mentorship-oriented

roles aligning with Theory Y's core principles.

Theory Y implementation features three pillars:

(1) Participatory Management & Self-Control

(2) Leaders involve members in co-developing project goals/plans, enhancing ownership. Self-direction based on expertise and academic interests is encouraged.

(3) Flexible Structure & Open Culture

Adaptive frameworks foster cross-disciplinary collaboration. Leaders cultivate psychologically safe environments for knowledge sharing. Intrinsic Motivation & Achievement Leaders ignite internal drive through: Challenging assignments, Professional/academic growth support, Recognition of excellence.

6. Application of X-Y Theory Integrated with Maslow's Hierarchy

As established, engineering consulting teams composed of university faculty exhibit strong intrinsic motivation, with organizational needs predominantly oriented toward social belonging, esteem, and self-actualization.

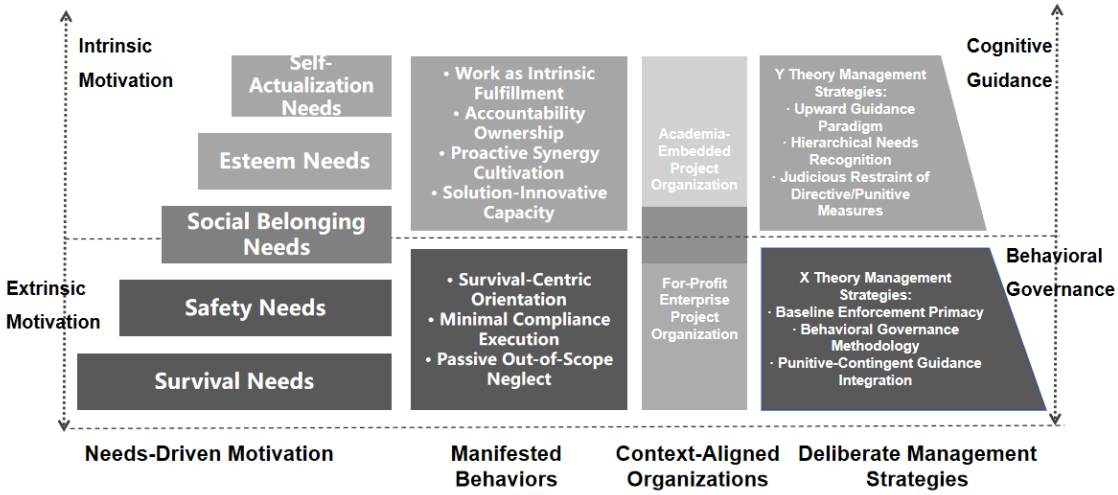

Figure 1. Application Context of X-Y Management Theory Integrated with Maslow's Hierarchy of Needs

Applying Theory X's behavior-centric control mechanisms to such teams creates a fundamental mismatch between individual needs and management methodology. This incongruence renders organizational strategies incapable of fulfilling members' participation objectives.

Per McGregor's framework, Theory Y-appropriate organizations must fully affirm human agency as productive agents. Here, member initiative dominates, with management's core function being the optimization of this latent potential.

Consequently, imposing Theory X strategies on faculty-led consulting teams would deprive participants of higher-order needs as:

(1) Trigger negative, adversarial, and responsibility-averse attitudes

(2) Provoke widespread disengagement

(3) Ultimately cause project termination

7. Conclusion

In summary, university engineering consulting project organizations exhibit distinct organizational characteristics and divergent management needs compared to conventional project teams. These differences necessitate tailored management strategies that align with organizational contexts, while simultaneously reflecting how members' professional backgrounds and intrinsic drivers influence team structuring and governance.

Project managers need to select context-appropriate management approaches to support implement calibrated adjustments based on organizational demands. Also the position needs to understand respecting, and strategically responding to these distinctions proves instrumental in Optimizing team architecture, enhancing project efficiency and fostering sustainable organizational development.

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