

The application and practical benefits of "C theory" in project management

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Abstract. This study regarded adult in-service students who are familiar with project management courses as the subjects and collected data through questionnaires for confirmatory factor analysis and reliability analysis. The aim is to construct a "C Theory" questionnaire scale that encompasses the essence of Chinese management philosophy like decision-making of Taoism, leadership of Legalism, tactics of School of Military Strategists, creativity of Mohism, and coordination of Confucianism. Furthermore, management performance scales were constructed for learning and growth, internal operation, customer satisfaction, and financial control, while the questionnaires and statistical analyses were expected to probe into the impact of "C Theory" on project management performance. This study found that the application and practice of "C Theory" have a high and positive correlation with project management and a significant influence on the improvement of performance. It is therefore suggested that management methods in "C Theory" be appropriately used in project management in order to enhance the efficiency of project management and facilitate the achievement of project management targets.

1 Introduction

1.1 Research motives

Chinese philosophy contains extensive knowledge and profound scholarship with a long history and remarkable impact on human civilization. As early as the Spring and Autumn Period, there was the grand occasion of contention of a hundred schools of thought that were passed down and concentrated into five major scholars: Confucianism, Legalism, Mohism, School of Military Strategists, and Taoism. Many scholars [20-22], [36, 43, 52] pointed out that Chinese style leadership and management philosophy mainly adopt ethics of Confucianism, rule of law of Legalism, universal love of Mohism, power tactics of School of Military Strategists, and letting things take their own course of Taoism as the comprehensive framework. Kao (2014b), Kao (1999), and Tsai and Wu (2013) integrated the previous five Chinese leadership thoughts into "Throne" tactics and leadership philosophy. Lu (2005) pointed out that rule of law of Legalism was similar to X Theory of Douglas McGregor, while "self-discipline and stabilizing others" of Confucianism was similar to Y Theory of Douglas McGregor and Z Theory of William G. Ouchi, and letting things take their own course of Taoism was

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similar to L Theory of William D. Hitt. Furthermore, the Western military academic field spares no effort to utilize the thoughts of School of Military Strategists. Specifically, Master Sun's Art of War has become important material to educate military generals and leaders in the fields of industry, government, and academic circle. Therefore, Chinese leadership and management and that of the West are different in approach, but equally satisfactory in result.

Cheng (1995) observed the differences of the East and the West in terms of cultures, social organizations, philosophical way of thinking, value, and history experiences and concluded "C Theory" from the research results of the Book of Changes, which could embrace all the valuable management and philosophy ideas in the East and the West. Here, "C" refers to the creativity of the Book of Changes of China. Cheng (1995) integrated the principle of mutual promotion of the Five Elements to develop the management model of C Theory (as shown in Figure 1) and employed the principle of mutual promotion and restraint between the Five Elements to elaborate the basic leadership philosophy of the Book of Changes.

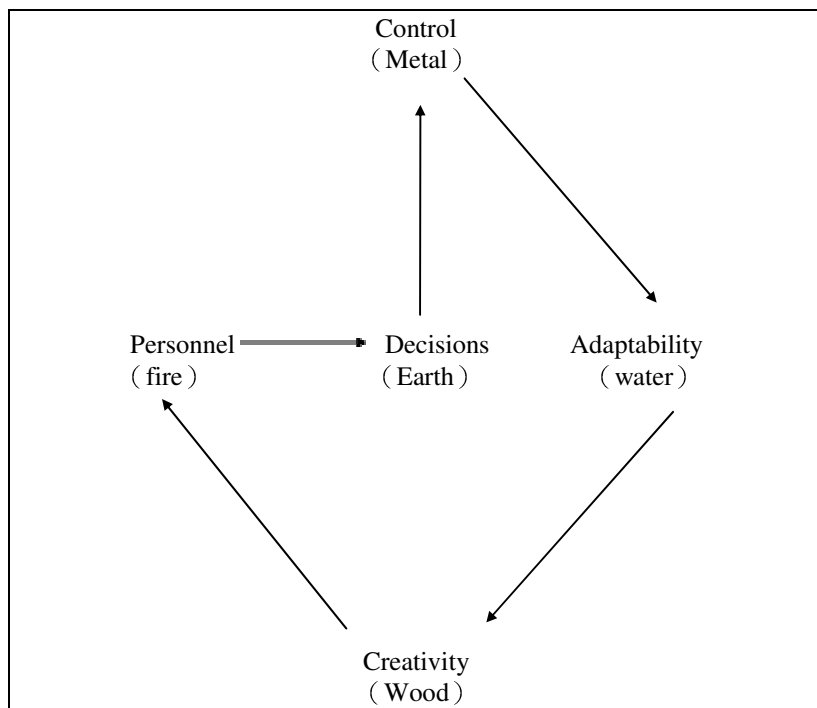


Figure 1. Management Model of C Theory, Source: Cited from Cheng, 38(1995).

According to Figure 1, the "Five Elements" refer to metal, wood, water, fire, and earth. Their key implications are described as follows [5, 46].

1. Metal: It is resolute, fortitude, firm, and flexible and not destroyed after severe training and hammering. It represents "control".
2. Wood: It means prosperous and thriving and stands for "creative plans".
3. Water: It is changing and stands for the "adaptability capacity" of a leader in the face of an ever-changing external environment.
4. Fire: It is strong and vigorous and stands for "personnel" with high morale.
5. Earth: It is thick and sound and boundlessly inclusive. It can create life and guard the center. It stands for "the wisdom of decision-making" of a leader.

Cheng (1995) compared leadership to "gold". Gold stands for strength, firmness, and flexibility, which are the characteristics required for a leader. A good leader shall be like gold rather than iron and shall be loyal, wise, and flexible. Gold surpasses iron and copper, because it is soft, thoroughly tempered, elastic, and resilient. On the contrary, iron rusts and is not plastic, while copper can easily

be destroyed. If a leader is like iron or copper, then he/she may be unfaithful and not flexible. Hence, the best leader shall be like pure gold. The order of mutual promotion among the Five Elements is that wood promotes metal, metal promotes water, water promotes wood, wood promotes fire, and fire promotes earth. It implies that decision-making is the core of management. A decision-maker shall have a driving force that must be a power in the center - that is, "earth" in the center. The central power of "earth" shall be deep and sound with the potential of development. In other words, we call it the driving force of decision-making. The wisdom to make decision produces leadership, and one with such wisdom can be a leader. If explained by the principle of the Five Elements, it is "earth promotes metal". "Metal" means being decisive. The strength to cut through metal is a power, or, leadership. The basis of leadership is the wisdom to make decision, or the wisdom of "earth". With the support of vigorous leadership and decision-making, one can conquer "water". One with adaptability capacity knows how to cope with the ever-changing external environment like water and come up with creative plans. If explained by the principle of the Five Elements, it is "water promotes wood". "Wood" means thriving and creative plans. With creative plans, one can combine the wills of members to inspire more potential to form strong, vigorous, and high morale. If explained by the principle of the Five Elements, it is "wood promotes fire". "Fire" has the function to fuse and aggregate. The best decisions can be made by gathering fire and wisdom of all people and giving full play to the role of "fire promotes earth" [53].

Tom Peters & Robert H. Waterman (2005) noted that, "In the future, more than 90% of white-collar workers would face a crisis. All future white-collar works are project works. The same is true for all the works with economic value." A project is not repeatable or routine, but unique. Once a project is completed, it will never be repeated. A project refers to a specific program, recommendation, decision, or matter [44]. According to the Project Management Quality System Guide established by International Standard Organization (ISO) (ISO 10006: 2003), a project is a unique process that is made up by a series of activities with start and end dates, which mutually coordinate and control and which meet the constraint conditions or goals of time, costs, resources, and so on. According to IPMA Competency baseline (ICB), a project refers to the temporary investment and efforts made by an organization to reach a specific goal within a period of time [14]. Project Management Institute (PMI) deemed that a project refers to a temporary effort to create a unique product, service, or result [47]. Based on the above definitions of professional organizations and scholars [23, 30, 32, 35, 37, 41, 44] this study assumed that a project refers to a one-time event, not repeated, with start and end dates, pre-set and clear goals, and limited resources, which shall produce expected deliverables.

The connotation and framework of this study's project management was based on Project Management Quality System Guide (ISO 10006: 2003) established by ISO, IPMA Competency Baseline (ICB), A Guide to the Project Management Body of Knowledge of Project Management Institute (PMI), and Project Management Procedures of British PRINCE2. To develop the methods and strategies of project management, in principle it followed five major procedures: initiation, planning, execution, control, and end [16, 25, 27, 31, 35, 37], [38, 41, 44, 47, 57, 64]. Project management must organize, deploy, and recruit personnel, adopt effective communication and regime development teams, integrate human resources, materials, and financial resources inside and outside an organization, comply with the verification standards to produce deliverables, and meet the needs of the project stakeholders [14, 24, 28, 30], [31, 33], [34, 47, 57, 64].

Modern organizational works have the characteristics of a project. Hence, they can no longer be done by routine management methods. On the contrary, one shall employ the techniques and processes of project management, set and use organizational key performance indicators to evaluate the effect of management, and continue to improve in order to achieve the organization's business objectives. To avoid unsatisfactory performance due to cost overruns, delay, improper range, and poor quality, one shall utilize the methods and strategies of project management, carefully consider the feasibility to initiate a project, rationality of planning, effectiveness of implementation, monitoring accuracy, and completeness, and improve gradually to achieve goals and visions of the organization. However, how can we tell that the goals and visions are reached? It is necessary to apply appropriate assessment methods and indicators to assess whether an organization has reached its desired objectives and visions. Balanced Scorecard (BSC) is a common way used for such a purpose, especially in industry

and educational circles. BSC was first proposed by Robert Kaplan and David Norton in 1992. It is a set of strategic management tools to assess the management system and strategy indexation of organizational performance, stressing the spirit of "balance" and effectively converting strategies into action to guide an organization to achieve its goals [18, 65].

The goals and indicators of BSC are derived from the visions and strategies of an organization. The dimensions of evaluation include finance control, customer identity, internal operation, and learning and growth [7, 13]. BSC focuses on balance and seeks a balance between short- and long-term goals, between financial and non-financial metrics, between delayed and advanced assessment indicators, and between internal and external performances of an enterprise. According to Fortune, among the top 1000 enterprises in the U.S., up to 40% have adopted BSC. A Bain & Company survey also pointed out that over 50% of North American companies have adopted BSC as the method to evaluate their internal performances. Harvard Business Review commented that BSC is the most influential strategy management tool since 1975. The strategic and action considerations and management skills of BSC have been stressed and applied by many enterprises and organizations [58-61].

This researcher is a member of teaching staff engaged in in-service education at an adult education institution and a teacher of courses related to project management. Hence, in terms of its research motive, this study regarded adult in-service students with the experience of project management courses as its samples in order to understand their outcomes of the application of C Theory in project management in an organization and the organizational performances in BSC learning and growth, internal operation, customer satisfaction, and finance control. This study learned the influences of the application of "C Theory" in project management by samples with different social variables on organizational performances and the strategies proposed by them to improve the performances of project management, strengthen project management knowledge and system and organizational training to introduce the procedures and methods, and to enhance the project management capacity of members, organizational maturity of project management, and efficiency of practical application.

1.2 Research purposes

Based on the aforementioned research motives and backgrounds, the research goals are described as follows.

- 1.2.1 To understand the connotation of C Theory and organizational performance.
- 1.2.2 To develop Application of C Theory and Organizational Performance Questionnaire.
- 1.2.3 To explore the influence of the application of C Theory in project management on organizational performance.
- 1.2.4 To propose feasible strategies to improve organizational performance through the application of C Theory in project management based on the research results.

1.3 Research method and process

This study first learned the connotation of C Theory and BSC through a literature review and analysis to develop a first draft of "Questionnaire of Application of C Theory and Organizational Performance". It then distributed the pre-run questionnaire to the adult in-service students with the experience of project management courses to develop the reliability and validity of the questionnaire. It conducted a formal questionnaire survey and collected feedbacks for statistical analysis. The methods of descriptive and inferential statistics helped this study understand the application of C Theory and organizational performances of the subjects during project management. It also learned the differences in the application of C Theory in project management and organizational performance of the subjects with different social variables and analyzed the correlation between the application of C Theory and organizational performance. Lastly, this study shall provide a conclusion and propose feasible strategies to improve organizational performance and efficiency of project management.

1.4 Research structure

Figure 2 illustrates the statistical analysis framework of this study. Based on the empirical research in recent years by this researcher [25, 27, 32], [33], this study explored the social variables of gender, age, education, occupation, position, organizational history, and organizational scale and then adopted the decision-making performance of Taoism, control performance of Legalism, tactics performance of School of Military Strategists, creativity performance of Mohism, and coordination performance of Confucianism as the independent variables for the application of C Theory in project management. Lastly, it adopted learning and growth, internal operation, customer satisfaction, and finance control as the dependent variables of performance. Through empirical research and inferential statistical analysis, it explored the relationships among the variables.

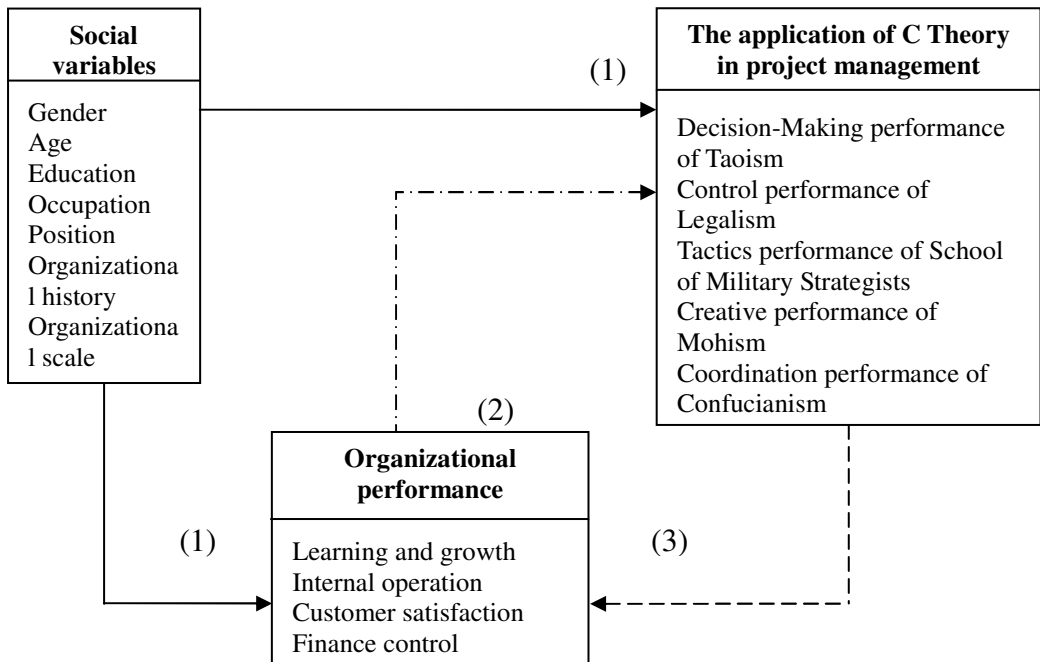


Figure 2. Study Chart, Source: Drawn by this researcher.

Statistical analysis:

- (1) T test and One-way ANOVA were adopted to learn the cognitive differences in the application of C Theory in project management and organizational performance of the subjects with different social backgrounds.
- (2) Pearson correlation was used to analyze the correlation in the application of C Theory in project management and organizational performance.
- (3) Regression analysis was employed to understand the predictability of the application of C Theory in project management for organizational performance.

2 The connotation of C theory and the description of relevant leadership and management

Cheng (2015) proposed C Theory and pointed out in his book on the theory that management factors could be classified into five categories: adjustment, practice of thoughts and ideals, business creation, and creativity transformation. The five categories were the independent and coordinative application of mechanisms, including skills such as operational ability, application of system knowledge,

principles and values of principles, and the practice of "Taoism" (the basic principles of formation and transformation) with intelligence. There is no doubt that, as ethical principles, they could also be used in management as guiding principles, because ethics and management are inherently associated in terms of content and functionality. The five categories serve as a reference for the levels of management, which is the transformation of ethical levels. According to the management level structure, C Theory for the first time described how a normative management theory was developed. Cheng (2015) assumed that modern leadership and management meant institutional reform in the face of change and optimized structure. Hence, an appropriate form of leadership was identified and expected. The most important factors for political leadership were listed from historical experience, modern knowledge, and future expectations to discover important experiences and preservation of memories. Learning from competitors and the development of modernization and globalization are equally important.

From the systematic operation of business organizations, the operational framework of the Five Elements shown in Figure 1 could be applied in the system of modern business organizations and the integration and circulation related to management and leadership in order to obtain creative management functions of C Theory. Figure 3 shows the mutual promotion and restriction of each system in an organization. C1 refers to planning and commitment (Chairman of the Board of Directors), C2 to constitution and commands (General Manager, CEO), C3 to competition and cooperation (Marketing Director, Chief Marketing Officer), C4 to creativity and transformation (Product Operation), C5 to communication and coordination (HR), C6 to understanding and communication (Shareholders' Meeting), and C7 to termination and continuity (re-election of Shareholders' Meeting). Based on the operation of the Five Elements management system of an organization shown in Figure 1, icon " \rightarrow " symbolizes the promotion of one function to another. In other words, $C_i \rightarrow C_j$ means that C_i produces C_j [5-6]. Thus, C1 representing commitments produces C2 representing commands. Why is this so? In an organization, the commitment to goals leads to the actual participation in commands. Accordingly, when commands enter the market, they become C3 representing competition. What the market needs and produces is C4. C3 follows the needs of customers. When C4 develops in the market, it returns to C5, which is the situation realized through education and development. C5 then needs to return to the beginning to circulate again. The process implies a continuous and mutual promotion relationship, similar to the theory of separation of five powers - namely, wood, metal, water wood, and fire [6, 41, 42].

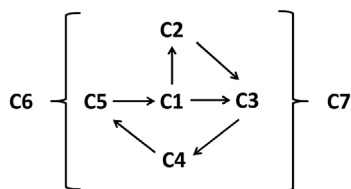


Figure 3. Integration and Circulation of the Creative Management Function of C Theory, Source: Cited from Cheng, 2015, 36.

Cheng (1995) asserted that aside from the integration framework of the Book of Changes, the leadership and management philosophy of C Theory, in terms of leadership and management practices, reflects the decision-making function of "earth" of Taoism, control function of "metal" of Legalism, adaptability capacity of "water" of School of Military Strategists, creativity function of "wood" of Mohism, and coordination function of "fire" of Confucianism, serving as the references and rules of organizational leadership and management. Though each industry promotes different practices in the tasks of project management from initiation, planning, execution, control, to end, the chronological order of all the stages is called "project management procedures". The beginning and end of project management together make up the period of a project. The project management procedures can be classified into six stages: (1) Receipt of a project task; (2) Analysis of the project task; (3) Project planning and action; (4) Distribution of the project task; (5) Execution of the project task; and (6) End

of the project task [16, 14], [28-34], [57]. Kao (2014b) believed that after introduction of a leadership philosophy like Confucianism, Legalism, Mohism, School of Military Strategists, and Taoism to the project management and operation of an organization, the feasible strategies include strengthening the professional function of a leader, establishment of the system and regulation of HR management and development, establishment of the authorization system of project management to promptly finish each task, setting up and implementing a project change control system to enhance the efficiency and value of the project, and establishment of a reward and punishment system to enhance the oral and honor of the project members.

Tsai and Wu (2013) pointed out that Confucianism mainly employed the governance of morality, etiquette, and music and developed five major leadership strategies of action by etiquette, governance by morality, consistent cognition and behavior, and govern by doing nothing that goes against nature. Legalism mainly advocated the leadership strategies of reward and punishment, right person for the right position, performance assessment, and letting things take their own course. Mohism stressed hard practice, leading by example, strict self-discipline, virtue, unity, universal love, and strict rules. "According to the rules of Mohism, the murderer shall be sentenced to death, while the person who hurt others shall be punished." This is the way to maintain justice and equality. School of Military Strategists revealed the subjective law of human competition, emphasizing that understanding others and oneself, avoiding the solid and striking the weak, plotting and creating situation, and adaptability capacity could bring about successes. Taoism focused on the leadership strategies of being wise to choose a person for a job, following procedures, letting things take their own course of Taoism, giving authorization to employees, being employ-oriented, recognizing and adopting correct statements, and being inclusive. Kao (2014b) used "Chinese Throne" (see Figure 4) to explain leadership. The left and right handles are like the left and right tokens of a leader and the guarding laws of an organization. The right token is the ethics of Confucianism, while the left is the strategies to govern subordinates of "rules", "strategies", and "trends". The base plate is like the strength of a leader's legs or the military strategies of a strategist. The cushion in the middle balances among the philosophies of Confucianism, Legalism, School of Military Strategists, and Mohism. When the four schools help an organization enter into the right track, the leader can rest assured to implement the ideas of Taoism of "nature and letting things take their own course of Taoism", "following the nature and people", and "adaption to different circumstances".

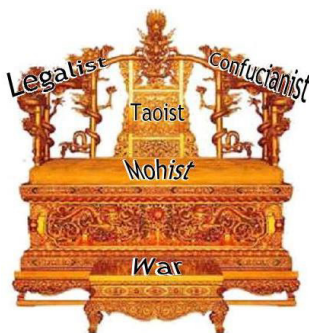


Figure 4. Leadership Philosophy of Chinese Throne, Source: Kao, 42(2014b).

The aforementioned leadership philosophies of the different Chinese schools were experienced without scientific evidence or objective and universal efficiency. Kang, Chang, Yang, and Huang (2010) deemed that under the influence of traditional Chinese culture, Chinese had a unique perception on the concept of leadership, and the leadership behavior of a leader would reflect some characteristics of Chinese culture. Chen (2014) pointed out that Chinese believed that to complete one thing smoothly, one must need "good timing, geographical convenience, and good human relations". Kang, Su, Chang, and Hsu (2001) believed that both Chinese and Western leadership had the connotations of the trait theory, behavior theory, and contingency theory. However, the behavior model of Chinese contingency leadership was based on "affection", "reason", and "law". A leader

considered the respective weight of the leader roles of "sovereign", "parent", and "teacher" and switched among them to realize the true functions of a leader [36]. Chinese often say "being fair and reasonable" or "being reasonable and legal". When talking about "fairness" and "law", "reason" is inseparable, indicating the true leadership philosophy of Chinese: Everything shall be fair, reasonable, and legal [55]. From the perspective of leadership and management, national culture is an important situational factor. Therefore, to understand the ideas or assumptions about Chinese leadership, one must take "culture", "society", and "history" into consideration [63].

No matter for management theory or organization operating practices, the way of thinking of "The West leads the East" has gradually turned into "The West meets the East". The idea of governance by morality advocated by Chinese organizations has gradually attracted the attention of Eastern and Western academia and industry. The interpretation of "the relationship competition and cooperation" with Eastern and Western philosophies could serve as insightful guidance to the competition-cooperation strategy of leadership and management of an organization [3]. Though Chinese leadership philosophy does not stress scientific evidence, it stresses situations, rule by man, and authority and introduces the comprehensive and harmonious beauty to leadership so as to make up for Western leadership philosophy, which focuses on system, law, and power and lacks a cultural atmosphere. In fact, the humanization of science and the scientization of culture might be an alternative solution to Eastern and Western leadership philosophies [49, 52]. Tseng (1987) and Tsai (2008) deemed that Taiwan has long advocated Chinese style management. According to Confucianism, the essence of management was to "human act", while to Legalism, it was "utilitarian act", to Taoism, "nature act", to Mohism, "altruism act", to the Book of Changes, "humanity act", and to Neo-confucianism, "reason act" [39]. Hsu (1992), Chu (1994), Tseng and Liu (1999), Tseng (2002), Huang (1999), et al. all believed that Confucianism advocated "people"-oriented ideas, used appropriate methods to gain the support of subordinates, promoted influencing others by one's own morality, adhered to benevolence, upheld the principle of kindness to the people, and used acceptable ideas and concepts to maintain justice and adaptability composition.

This study integrated the aforementioned description on C Theory and relevant leadership and management, used the operational procedures and characteristics of project management to explore the operation framework and items of the application of C Theory in project management, and summarized five major dimensions of project directors (namely, decision-making performance, leadership performance, adaptability performance, creativity performance, and coordination performance) and 25 management performance items of project directors. The items were adopted in the Scale of Application of C Theory for the "Application of C Theory and Organizational Performance Questionnaire" of this study. See below for a detailed description.

A. Decision-making performance of project directors (decision-making function of Taoism)

- A-1. Consideration of the advantages and disadvantages of the organization to make a decision.
- A-2. Consideration of the opportunities and risks outside the organization to make a decision.
- A-3. Consideration of the instruction of senior management of the organization to make a decision.
- A-4. Consideration of the needs of customers to make a decision.
- A-5. Consideration of the suggestions of project members to make a decision.

B. Control performance of project directors (control function of Legalism)

- B-1. Establish a system and regulation for the implementation of the project.
- B-2. Emphasize the power and responsibility performances of project members.
- B-3. Implement a reward and punishment system for project members of the project.
- B-4. Actively establish the prestige of project directors
- B-5. Comprehensive supervision and control of the actions of project members.

C. Adaptability performance of project directors (adaptability function of School of Military Strategists)

- C-1. Make execution guidelines for the project according to situations and conditions.
- C-2. Understand the needs and characteristics of project members to adjust management approaches.
- C-3. Promote the recognition of the visions and goals of the project to project members.
- C-4. Promote the cooperation of project members to the instruction of directors.
- C-5. Change the control of the project according to changes of internal and external contexts.

D. Creativity performance of project directors (creativity function of Mohism).

- D-1. Encourage project members to strengthen project efficiency by creative methods.
- D-2. Award given to project members who develop patents.
- D-3. Emphasize mutual support and cooperation during the implementation of tasks.
- D-4. Enhance efficiency and effectiveness by creative management approaches.
- D-5. Actively promote the maximization of project results.

E. Coordination performance of project directors (coordination function of Confucianism)

- E-1. Active communication and coordination with project stakeholders.
- E-2. Serving as role models for project members.
- E-3. Emphasize the moral and ethical performance of project members.
- E-4. Promote mutual respect among project stakeholders.
- E-5. Promote harmony among project stakeholders.

3. The connotation and relevant description of organizational performance

There are diversified studies on an organizational performance system in the literature. This study regarded the BSC proposed by David P. Norton and Robert S. Kaplan as its assessment system of organizational performance. BSC was derived from the research project co-held in 1990 by David P. Norton, the CEO of Norlan Norton Institute, and Robert S. Kaplan, a professor of Harvard University, which had invited 12 companies to participate. Their team collected and analyzed many cases on a creativity performance assessment system and proposed a performance assessment, BSC, covering four major dimensions: finance, customer, internal processes, and learning and growth [18]. In response to the eagerness to learn BSC, David P. Norton and Robert S. Kaplan published *The Balanced Scorecard: Translating Strategy into Action* in 1996 [12, 59, 65]. David P. Norton and Robert S. Kaplan believed that in the information age, there were more opportunities to apply BSC creativity strategies than that of performance assessment. Hence, they wrote a second book on BSC: *The Strategy-focused Organization: How Balanced Scorecard Companies Thrive in the New Business Environment* [13].

After the publication of the research results related to BSC by David P. Norton and Robert S. Kaplan in 1992, BSC had become a hot topic of organizational performance evaluation. Since 2000, non-profit organizations have also introduced BSC and achieved considerable successes. BSC has developed into a widely-used policy management system [2, 48, 60]. BSC makes organizational tasks and strategies more specific, translates them into actions so as to create competitive advantages, employs the linkage of the four dimensions to convert the organizational tasks and strategies into strategic objectives and strategic performance measurement, facilitates an organization to focus on strategic topics in terms of performance evaluation, integrates organizational resources, effectively implements strategies, and accelerates the realization of the visions of an organization. Described as follows, BSC contains four major dimensions: finance, customer, internal processes, and learning and growth [12].

- 2-1 Financial dimension: Organizational profitability and investment costs. Its assessment indicators include operating income, return on capital, and added value.
- 2-2 Customer dimension: Other organizations or individuals who have contact with an organization. Its indicators include customer satisfaction, profitability ratios, and increase rate of new customers.
- 2-3 Process dimension: Its assessment indicators include manufacturing, marketing, after-sales service, product development, and creativity.
- 2-4 Learning and growth dimension: Its assessment indicators include investments in the growth of skills and information capacity of staff.

BSC was designed and implemented by an organization to enhance its management performance. However, David P. Norton and Robert S. Kaplan (2001) pointed out that BSC could achieve better results in the improvement of governmental or non-profit organizations [48]. As for the establishment

of the overall "performance management system" of an organization, BSC also included the visions, goals, and mid- and long-term development plans of an organization [7]. According to the experiences of enterprises that had introduced BSC, BSC was an arduous and time-consuming task. Its difficulty lied in how to find truly proactive management strategies. It did not easily identify unique, "distinct, and excellence elements" superior to the existing ones of an organization [61]. In other words, the competitiveness of an organization could be enhanced by identifying the uniqueness of each of the four dimensions of BSC. Therefore, an organization must re-examine and adjust its organizational structure, processes, and organizational culture and translate its visions and goals into concrete and feasible strategic plans [1, 8, 40]. It is thus necessary to establish a good performance assessment system and appropriate performance assessment indicators to sustain the quality of project management and operations of an organization. Therefore, while introducing BSC to project management, an organization must consider its characteristics, internal and external resources, and measurable indicators inside the organization.

Based on technical ability index 1.06 of IPMA ICB 3.0, Project Management Organization is made up of humans and a relevant basic structure. Project management includes project design and maintenance of appropriate roles, organization, structure, responsibility, and ability. The organization of a project and program is unique and temporary. Its stages or conditions are adapted to conform to the project life cycle. A portfolio project organization is similar to a permanent organization and can be regarded as a permanent sector. Even so, a project organization usually has a shorter circle and changes faster than other permanent organizational sectors [19].

The performance of a project management organization depends on the capacity of all the staff. The capacity of the staff assigned to participate in the project must be tested, and the executive performance of members shall be verified by line management. The optimal operation model is to provide an appropriate way for line managers to discuss with project members together so as to make an individual fulfill a specific role on the team. The knowledge, skills, and experiences of an individual should be reviewed. A line manager shall also consider whether the personality of an individual can match with those of other members. When they do not participate in the selection of team members, line managers must overcome obstacles to develop a project team made up of team members with highly different characteristics [27].

Kao (2012) pointed out that each organization, after a period of operation, evolves into a certain structure that might not necessarily be most suitable for the task and the environment. Different organizational structures have different characteristics. For instance, a centralized and hierarchical structure reduces coordination costs, but hinders communication. Democratic and equal structures encourage communication, but have higher coordination costs. In addition, the size of a team also has an effect on its efficiency, but small organizations tend to have better cohesion, low additional cost, and higher morale. Before a team is formed, organization and structure factors should all be considered. For long-term projects, job satisfaction should also be considered so as to reduce staff turnover.

Based on the above BSC connotation and the organizational characteristics of project management, the organizational performance assessment system of project management includes learning and growth, internal operation, customer satisfaction, and financial control and their items. The twenty items of organizational performance of project management proposed were adopted in the Scale of Application of C Theory from the "Application of C Theory and Organizational Performance Questionnaire" of this study. See below for a detailed description.

A. Learning and growth

- A-1. Organization members could actively participate in each advanced study activity.
- A-2. Organization members could actively analyze issues to solve and improve them.
- A-3. Organization members could actively publish research results and share success experiences.
- A-4. The organization could actively encourage staff to innovate to enhance work performance.
- A-5. The organization could establish a reward system to openly award excellent staff regularly.

B. Internal operation

- B-1. Members could identify the visions, goals, and business strategies of the organization.

B-2. The organization could set up appropriate and feasible business development plans.

B-3. The organization could establish clear rules, regulations, and work norms.

B-4. The organization could arrange tasks among staff according to their expertise and responsibilities.

B-5. The organization could use diversified approaches to enhance work performance.

C. Customer satisfaction

C-1. The organization could establish good channels to communicate with customers.

C-2. The organization could respond positively to the reactions and requirements of customers.

C-3. Customer satisfaction to the organization's services gradually increases.

C-4. Customers' re-visit rate gradually increases.

C-5. Customers actively introduce new customers.

D. Finance control

D-1. The organization could make an accurate budget based on real business needs.

D-2. The organization could establish an appropriate budget implementation, supervision, and evaluation mechanism.

D-3. The organization could assess the efficiency of budget implementation on a regular basis.

D-4. The organization could develop a variety of R&D plans to seek funds.

D-5. ROI gradually increases.

4. Establishment of application of C theory and organizational performance questionnaire

This study summarized and analyzed the relevant literature, edited questions on the application of C Theory and organizational performance, and employed statistical analysis methods like expert validity, configuration validity, and reliability in order to establish the Application of C Theory and Organizational Performance Questionnaire.

4.1 Method to establish the application of C Theory and organizational performance questionnaire

Based on the aforementioned literature discussion and analysis, this study summarized and edited "a first draft of Application of C Theory and Organizational Performance Questionnaire" and invited project management practitioners, university professors, and scholars and experts in the field of project management as auditors of the first draft of the questionnaire. In terms of project management practitioners, it invited 2 project managers and 3 project members. In terms of university professors or scholars in the field of project management, it invited a total of 10 scholars and researchers from National Pingtung University, National Kaohsiung First University of Science and Technology, Republic of China Military Academy, Chang Jung Christian University, Aletheia University, Cheng Shiu University, Tajen University, and Open University of Kaohsiung through the help of Taiwan Project Management Association.

After the audit of the questionnaire's first draft, a pre-test of the questionnaire should be conducted. A total of 160 copies were sent, while 142 valid feedbacks were collected to establish its validity and reliability. For validity, this study adopted Structural Equation Modeling (SEM) to analyze factors. One of the most important characteristics of SEM is to be established on certain theories. In other words, SEM is a statistical technique that verifies the fitness of a priori theoretical model [9]. The content and nature of latent variables should be clearly described at the beginning of the test or have a specific theoretical basis, and the corresponding composition model used to observe variables should be determined. The purpose of analysis was to verify the fitness of the priori factor structure. The procedures could be used to develop test tools as well as the effectiveness of the structure and theoretical framework. Hence, it is also called confirmatory factor analysis (CFA)[10, 62].

As for the "Scale of Application of C Theory", this study referred to project management knowledge systems like ISO10006, IPMA, PMI, and PRINCE2, edited the theoretical framework of

the decision function of Taoism, control function of Legalism, adaptability function of School of Military Strategists, creativity function of Mohism, and coordination function of Confucianism of C Theory to the five major dimensions of project directors - decision-making performance, leadership performance, adaptability performance, creativity performance, and coordination performance - and proposed 25 performance items of project directors. As for the "Organizational Performance Scale", this study then referred to the BSC theoretical framework of David P. Norton and Robert S. Kaplan, adapted it to four major dimensions - finance control, customer identity, internal operation, and learning and growth - and proposed 20 assessment items. The above two scales had clear theoretical bases and models. Hence, in terms of the validity analysis of the questionnaire, LISREL was adopted for use of CFA on the structure equation in order to understand the internal factor model. As for reliability, this study adopted SPSS to conduct Cronbach's α analysis to understand the internal consistency of the questions of each level.

4.2 Results of the scales of application of C Theory and organizational performance

The results of expert validity and statistical analysis are described as follows from the two aspects of the Scale of Application of C Theory and the Scale of Organizational Performance.

4.2.1 Scale of application of C Theory

Through the results of expert validity analysis, this study kept the five major dimensions (namely, decision-making performance, control performance, adaptability performance, creativity performance, and coordination performance of project directors) and 25 items in the first draft. Some text of the questions was edited, while some questions were converged. The aforementioned questionnaire was then formed and SEM analysis and Cronbach's α analysis were conducted. The results are as follows.

4.2.1.1 SEM analysis of the scale of application of C Theory

Based on SEM analysis with LISREL, as the scale contained many questions, it could not reflect the relationship road map, but the degrees of freedom (DOF) and chi-square statistics of the overall model were obtained, wherein DOF were 2043 while the chi-square value was 11171.83 and the P value was 0.0, indicating that there were significant differences between the hypothetical model and the observed values. In addition, other adapter indices like NFI, NNFI, and CFI were more than 0.95, indicating that each question and dimension had good structure. The factor loading of the questions of each level is as follows.

- (1) The factor loadings from questions A-1 to A-5 of decision-making performance of project directors (decision-making function of Taoism) in order are: 0.53, 0.49, 0.53, 0.57, and 0.53.
- (2) The factor loadings from questions B-1 to B-5 of control performance of project directors (control function of Legalism) in order are: 0.51, 0.57, 0.50, 0.53, and 0.50.
- (3) The factor loadings from questions C-1 to C-5 of adaptability performance of project directors (adaptability function of School of Military Strategists) in order are: 0.53, 0.58, 0.52, 0.55, and 0.55.
- (4) The factor loadings from questions D-1 to D-5 of creativity performance of project directors (creativity function of Mohism) in order are: 0.61, 0.55, 0.64, 0.62, and 0.61.
- (5) The factor loadings from questions E-1 to E-5 of coordination performance of project directors (coordination function of Confucianism) in order are: 0.60, 0.53, 0.54, 0.58, and 0.56.

4.2.1.2 Cronbach's α analysis of the scale of application of C Theory

- (1) As for the reliability of decision-making performance of project directors (decision-making function of Taoism), α was 0.85, indicating that their decision-making performance had a certain degree of internal consistency. The correlation between each question and the total

questions was bigger than 0.57, indicating that each dimension had high internal consistency.

- (2) As for the reliability of control performance of project directors (control function of Legalism), α was 0.86, indicating that their control performance had a certain degree of internal consistency. The correlation between each question and the total questions was bigger than 0.61, indicating that each dimension had high internal consistency.
- (3) As for reliability of adaptability performance of project directors (adaptability function of School of Military Strategists), α was 0.86, indicating that their adaptability performance had a certain degree of internal consistency. The correlation between each question and the total questions was bigger than 0.65, indicating that each dimension had high internal consistency.
- (4) As for the reliability of creativity performance of project directors (creativity function of Mohism), α was 0.89, indicating that their creativity performance had a certain degree of internal consistency. The correlation between each question and the total questions was bigger than 0.69, indicating that each dimension had high internal consistency.
- (5) As for the reliability of coordination performance of project directors (coordination function of Confucianism), α was 0.88, indicating that their coordination performance had a certain degree of internal consistency. The correlation between each question and the total questions was bigger than 0.66, indicating that each dimension had high internal consistency.

Nunnally (1978) believed that α more than 0.7 indicated high reliability cited from [62]. Therefore, from the Cronbach α reliability analysis results of this study, the scale had a high degree of reliability and consistency.

In summary, the five dimensions and their respective questions of the Scale of Application of C Theory were all kept for the formal questionnaire in order to understand the five performances of the application of C Theory: decision-making performance, control performance, adaptability performance, creativity performance, and coordination performance of project directors.

4.2.2 Scale of organizational performance

Through the results of expert validity analysis, this study kept the four major dimensions (namely, learning and growth, internal operation, customer identity, and finance control) and 20 items in the first draft. Some text of the questions was edited, while some questions were converged, and the aforementioned questionnaire was formed. Lastly, SEM analysis and Cronbach's α analysis were conducted. The results are as follows.

4.2.2.1 SEM analysis of the scale of organizational performance

Based on the SEM analysis with LISREL, as the scale contained many questions, it could not reflect the relationship road map, but the degrees of freedom (DOF) and chi-square statistics of the overall model were obtained, wherein DOF were 395 while the chi-square value was 2930.37 and the P value was 0.0, indicating that there were significant differences between the hypothetical model and the observed values. In addition, other adapter indices like NFI, NNFI, and CFI were more than 0.95, indicating that each question and dimension had good structure. The factor loading of the questions of each level is as follows.

- (1) The factor loadings from questions A-1 to A-5 of learning and growth in order are: 0.60, 0.62, 0.58, 0.59, and 0.57.
- (2) The factor loadings from questions B-1 to B-5 of internal operation in order are: 0.58, 0.61, 0.61, 0.63, and 0.56.
- (3) The factor loadings from questions C-1 to C-5 of customer identity in order are: 0.64, 0.63, 0.60, 0.59, and 0.57.
- (4) The factor loadings from questions D-1 to D-5 of finance control in order are: 0.58, 0.55, 0.56, 0.56, and 0.51.

4.2.2.2 Cronbach's α analysis of the scale of organizational performance

- (1) As for the reliability of learning and growth, α was 0.87, indicating that learning and growth had a certain degree of internal consistency. The correlation between each question and the total questions was bigger than 0.65, indicating that each dimension had high internal consistency.
- (2) As for the reliability of internal operation, α was 0.86, indicating that internal operation had a certain degree of internal consistency. The correlation between each question and the total questions was bigger than 0.64, indicating that each dimension had high internal consistency.
- (3) As for the reliability of customer satisfaction, α was 0.87, indicating that customer satisfaction had a certain degree of internal consistency. The correlation between each question and the total questions was bigger than 0.68, indicating that each dimension had high internal consistency.
- (4) As for the reliability of finance control, α was 0.85, indicating that finance control had a certain degree of internal consistency. The correlation between each question and the total questions was bigger than 0.62, indicating that each dimension had high internal consistency.

Nunnally (1978) believed that α more than 0.7 indicated high reliability cited from [62]. Therefore, from the Cronbach α reliability analysis results of this study, the scale had a high degree of reliability and consistency.

In summary, the four dimensions and their respective questions of the Scale of Organizational Performance were all kept for the formal questionnaire in order to understand the four organizational performances: learning and growth, internal operation, customer identity, and finance control.

5. Research results

After the formal Questionnaire of Application of C Theory and Organizational Performance was completed, the cluster random sampling method was adopted to select 800 subjects to receive the survey, with 713 valid feedbacks collected. After statistical analyses like descriptive statistics, t test, One-way ANOVA, and regression analysis, the results are described as follows.

5.1 Results of descriptive statistics

5.1.1 Gender

Among the valid samples, there were 314 males, accounting for 44.0% of all respondents; while there were 399 females, accounting for 56.0%. The proportion of women was higher than that of men.

5.1.2 Age

Most of the respondents (522) were between 41 and 60 years old, accounting for 73.2% of all respondents, followed by the respondents (109) between 21 and 40 years old, accounting for 15.3%.

5.1.3 Education

Most of them (403) graduated from vocational or senior high schools, accounting for 56.5% of all respondents, followed by college and university graduates (269), accounting for 37.7%.

5.1.4 Occupation

Most of them (350) were engaged in the industry of business and service, accounting for 49.1% of all respondents, followed by civil servants (including those of military, government, education, police, and fire departments) (240), accounting for all samples 33.7%.

5.1.5 Position

Most of them were employees (525), accounting for 73.6% of all respondents, followed by persons in charge (96), accounting for 13.5% of all respondents. In addition, department heads (92) accounted for 12.9%.

5.1.6 Organizational history

Most of the organizations (271) had a history of over 21 years, accounting for 38.0%, followed by those of 5 years (inclusive) (183), accounting for 25.7%. In addition, those organizations between 11 and 20 years (158) accounted for 22.2%, while those between 6 and 10 years (101) accounted for 14.2%.

5.1.7 Organizational scale

Most of the organizations (333) had less than 50 employees, accounting for 46.7%, followed by those (236) of 201 employees, accounting for 33.1%.

5.2 Difference analysis of social background variables in the application of C Theory and organizational performance

5.2.1 Difference analysis of gender

The T test was used to compare the differences between men and women in terms of their application of C Theory and organizational performance. Significant differences were found in terms of adaptability performance, creativity performance, and coordination performance (T value = 2.79, P value = 0.01; T value = 2.68, P value = 0.01; T value = 2.54, P value = 0.01). The values of men were higher than those of women. There were also differences in terms of learning and growth and customer satisfaction (T value = 2.06, P value = 0.04; T value = 2.06, P value = 0.04). The values of men were higher than those of women too.

5.2.2 Difference analysis of age

One-way ANOVA was used to compare the differences among the respondents of different ages in terms of the application of C Theory and organizational performance. Significant differences were found for different ages in adaptability performance, creativity performance, and coordination performance (F value = 2.56, P value = 0.03; F value = 3.05, P value = 0.01; F value = 2.33, P value = 0.04). After further multiple comparisons, it was found that the average factor values of those between 21 and 40 years old, between 41 and 60 years old, and above 61 years old were higher than the values of those younger than 20 years old in terms of adaptability performance, creativity performance, and coordination performance, indicating that the former three age groups had better performances than the latter one in the three aspects.

Based on the statistical results of learning and growth and customer satisfaction (F value = 2.55, P value = 0.04; F value = 3.06, P value = 0.01; F value = 2.32, P value = 0.04), it was also found that the average factor values of those between 21 and 40 years old, between 41 and 60 years old, and above 61 years old were higher than the values of those younger than 20 years old in terms of learning and growth and customer satisfaction, indicating that the former three age groups had better performances than the latter one in the two aspects.

5.2.3 Difference analysis of education

One-way ANOVA was used to compare the differences among the respondents of different education backgrounds. Significant differences were found in decision-making performance, control performance, adaptability performance, creativity performance, coordination performance, and overall project management (F value = 5.04, P value = 0.00; F value = 2.92, P value = 0.03; F value = 3.39, P value = 0.02; F value = 5.46, P value = 0.00; F value = 4.16, P value = 0.00; F value = 5.02, P value = 0.00). There were also significant differences in learning and growth, internal operation, customer satisfaction, finance control, and overall organizational performance (F value = 5.07, P value = 0.00; F value = 9.39, P value = 0.00; F value = 5.22, P value = 0.00; F value = 3.35, P value = 0.02; F value = 4.12, P value = 0.00).

After further multiple comparisons, it was found that the average factor values of those graduated from colleges or universities or graduate institutes were higher than those graduated from senior middle schools or vocational schools in all the dimensions of the application of C Theory and organizational performance, indicating that the former had better cognitive perception than the latter in the aspects. Hence, enhancement of project leaders' education backgrounds and strengthening of in-service learning and growth had significant benefits for enhancing the application of C Theory and organizational performances.

5.2.4 Difference analysis of occupation

One-way ANOVA was used to compare the differences among the respondents of different occupations. Significant differences were found in decision-making performance (F value = 5.8, P value = 0.00), control performance (F value = 5.95, P value = 0.00), adaptability performance (F value = 6.66, P value = 0.00), creativity performance (F value = 6.72, P value = 0.00), coordination performance (F value = 6.72, P value = 0.00), learning and growth (F value = 5.74, P value = 0.00), internal operation (F value = 3.18, P value = 0.01), customer satisfaction (F value = 4.07, P value = 0.00), finance control (F value = 5.36, P value = 0.00), and overall organizational performance (F value = 3.88, P value = 0.00).

From further multiple analysis, it has been found that the average factor values of the respondents engaged in agriculture, forestry, fishery, and animal husbandry were the lowest, while those engaged in business and services or civil servants (including those of military, government, education, police, and fire departments) had high factor average values. The above results show that currently Taiwanese business and services practitioners and civil servants attach great importance to the introduction of project management and organizational performance. Taiwanese industry is currently in the active transition from being manufacturing-oriented to service-oriented, and the government and public sectors are stressing services quality and improvement of administration service satisfaction as their policy objectives. Hence, the perceptions of the respondents in project management performance and organizational performance are significantly enhanced. In addition, the respondents engaged in agriculture, forestry, animal husbandry, fishery, and manufacturing had low scores in the recognition of project management and organizational performance, mainly because the operations of systems and processes of primary and secondary industries are more stable than those of other industries. Hence, the practitioners in the former industries find it more difficult to perceive the improvement of project management and organizational performance.

5.2.5 Difference analysis of position

One-way ANOVA was used to compare the differences among the respondents of different positions. Significant differences were found in decision-making performance (F value = 5.65, P value = 0.00), control performance (F value = 5.94, P value = 0.00), adaptability performance (F value = 6.67, P value = 0.00), creativity performance (F value = 6.65, P value = 0.00), coordination performance (F value = 6.68, P value = 0.00), overall project management (F value = 5.75, P value = 0.00), learning

and growth (F value = 3.18, P value = 0.01), internal operation (F value = 4.07, P value = 0.00), customer satisfaction (F value = 5.36, P value = 0.00), finance control (F value = 3.88, P value = 0.00), and overall organizational performance (F value = 3.88, P value = 0.00).

After further multiple comparisons, it was found that the average factor values of persons in charge and department directors were higher than employers in all the dimensions of the application of C Theory and organizational performance, indicating that the former have better cognitive perception than the latter in the aspects. Hence, persons in charge and department directors took full advantages of C Theory, actively introduced project management procedures and methods, strengthened staff's ability of project management, and established team common sense so as to enhance project management and organizational performance.

5.2.6 Difference analysis of organizational history

One-way ANOVA was used to compare the differences among organizations with different history. Significant differences were found in decision-making performance (F value = 11.21, P value = 0.00), control performance (F value = 8.65, P value = 0.00), adaptability performance (F value = 8.57, P value = 0.00), overall project management (F value = 10.53, P value = 0.00), learning and growth (F value = 10.34, P value = 0.00), internal operation (F value = 10.51, P value = 0.00), customer satisfaction (F value = 5.68, P value = 0.00), finance control (F value = 2.57, P value = 0.01), and overall organizational performance (F value = 8.92, P value = 0.00).

After further multiple comparisons, it was found that the average factor values of organizations with a history of over 21 years were higher than those with a history of lower than 5 years (inclusive), between 6 and 10 years, and between 11 and 20 years in all the dimensions of the application of C Theory and organizational performance, indicating that the longer history an organization has, the better project management and organizational performance it has. Hence, skillful application of C Theory in project management, introduction of project management methods and procedures, and enhancement of organizational maturity can enhance operation and management performances and bring about sustainable operation and development opportunities and space.

5.2.7 Difference analysis of organizational scale

One-way ANOVA was used to compare the differences among organizations with different scales. Significant differences were found in decision-making performance (F value = 10.23, P value = 0.00), control performance (F value = 8.72, P value = 0.00), adaptability performance (F value = 8.54, P value = 0.00), creativity performance (F value = 8.43, P value = 0.00), overall project management (F value = 10.53, P value = 0.00), learning and growth (F value = 10.25, P value = 0.00), internal operation (F value = 10.64, P value = 0.00), customer satisfaction (F value = 5.71, P value = 0.00), finance control (F value = 2.58, P value = 0.01), and overall organizational performance (F value = 8.85, P value = 0.00).

After further multiple comparisons, it was found that the average factor values of organizations with over 201 employees were higher than those with lower than 50 employees (inclusive), between 51 and 100 employees, and between 101 and 200 employees in decision, control, adaptability, creativity, and overall project management, and all the dimensions of organizational performance, indicating that the bigger an organization is, the better project management and organizational performance it has. Hence, SMEs could apply C Theory in project management, introduce project management methods and procedures, and enhance organizational maturity so as to enhance operation and management performances.

5.3 Correlation analysis of the application of C Theory and organizational performance

Pearson product moment correlation was adopted to analyze the correlation between project management and organizational performance. Table 1 lists the data related to product moment

correlation of project management and organizational performance. It can be seen that each level and overall dimensions of the application of "C Theory" in project management and organizational performance have high and positive correlation (Correlation coefficients were above .70), indicating that the higher the application of "C Theory" in project management is, the better the organizational performance is.

Table 1. Product Moment Correlation Analysis between Project Management and Organizational Performance.

Correlation Coefficient		Organizational Performance				
		Learning and growth	Internal operation	Customer satisfaction	Finance control	Overall organizational performance
Application of "C Theory" in project management	Decision-making performance	.710***	.725***	.703***	.710***	.762***
	Control performance	.797***	.770***	.778***	.705***	.710***
	Adaptability performance	.844***	.705***	.722***	.785***	.774***
	Creativity performance	.829***	.853***	.856***	.797***	.844***
	Coordination performance	.845***	.714***	.752***	.792***	.760***
	Overall project management	.760***	.760***	.762***	.778***	.799***

*** p<.001

5.4 Regression and predictive power analysis of project management for organizational performance

5.4.1 Predictive power for learning and growth

Table 2. Predictive Power of Project Management in Learning and Growth.

	Unstandardized Coefficient		Standardized Coefficient	t	Significance	Multicollinearity Statistics	
	Estimated value of B	Standard error	Beta distribution			Tolerance	VIF
(Constant)	0.38	0.09		4.00	0.00		
Decision-making performance	0.27	0.05	0.28	5.66	0.00	0.31	3.15
Adaptability performance	0.28	0.06	0.23	3.44	0.00	0.18	4.14
Creativity performance	0.33	0.06	0.36	5.46	0.00	0.21	4.04
Dependent variable: Learning and growth							
Rsquare: 0.65							

Stepwise multiple regression analysis method was adopted to analyze the predictive power of each factor of the application of "C Theory" in project management for learning and growth. Table 2 shows that in the criterion variable of learning and growth, decision-making performance, adaptability performance, and creativity performance reach significant levels (T value = 5.66, P value = 0.00; T value = 3.44, P value = 0.00; T value = 5.46, P value = 0.00), wherein the influence of creativity

performance on learning and growth is the biggest, followed by that of decision-making performance. The standardized regression coefficients of the three independent variables are positive, indicating that their influences on learning and growth are positive. The degrees of tolerance are about between 2 and 3. The expansion coefficients of variation are below 5, lower than the evaluation index value of 10, indicating that the issue of multicollinearity among the independent variables is not obvious.

5.4.2 Predictive power for internal operation

Stepwise multiple regression analysis method was adopted to analyze the predictive power of each factor of the application of "C Theory" in project management for internal operation. Table 3 shows that in the criterion variable of internal operation, control performance, adaptability performance, and coordination performance reach significant levels (T value = 4.85, P value = 5.92; T value = 5.92, P value = 0.00; T value = 3.31, P value = 0.00), wherein the influence of adaptability performance on internal operation is the biggest, followed by that of control performance. The standardized regression coefficients of the three independent variables are positive, indicating that their influences on learning and growth are positive. The degrees of tolerance are about between 2 and 3. The expansion coefficients of variation are lower than the evaluation index value of 5 and thus less than the evaluation index value of 10, indicating that the issue of multicollinearity among the independent variables is not obvious.

Table 3. Predictive Power of Project Management in Internal Operation.

	Unstandardized Coefficient		Standardized Coefficient	t	Significance	Multicollinearity Statistics	
	Estimated value of B	Standard error	Beta distribution			Tolerance	VIF
(Constant)	0.33	0.09		3.51	0.00		
Decision-making performance	0.30	0.06	0.30	4.85	0.00	0.23	4.33
Adaptability performance	0.36	0.06	0.38	5.92	0.00	0.21	4.86
Coordination performance	0.27	0.07	0.27	3.31	0.00	0.19	4.34
Dependent variable: Internal operation							
Rsquare: 0.63							

5.4.3 Predictive power for customer satisfaction

Stepwise multiple regression analysis method was adopted to analyze the predictive power of each factor of the application of "C Theory" in project management for customer satisfaction. Table 4 shows that in the criterion variable of customer satisfaction, decision-making performance, adaptability performance, creativity performance, and coordination performance reach significant levels (T value = 5.86, P value = 0.00; T value = 2.57, P value = 0.01; T value = 6.05, P value = 0.00; T value = 6.17, P value = 0.00), wherein the influence of creativity performance on customer satisfaction is the biggest, followed by that of coordination performance. The standardized regression coefficients of the four independent variables are positive, indicating that their influences on learning and growth are positive. The degrees of tolerance are about between 2 and 3. The expansion coefficients of variation are below 5, lower than the evaluation index value of 10, indicating that the issue of multicollinearity among the independent variables is not obvious.

Table 4. Predictive Power of Project Management in Customer Satisfaction.

	Unstandardized Coefficient		Standardized Coefficient	t	Significance	Multicollinearity Statistics	
	Estimated value of B	Standard error	Beta distribution			Tolerance	VIF
(Constant)	0.02	0.07		0.32	0.75		
Decision-making performance	0.27	0.05	0.25	5.86	0.00	0.22	4.65
Adaptability performance	0.13	0.05	0.12	2.57	0.01	0.18	4.77
Creativity performance	0.31	0.05	0.31	6.05	0.00	0.16	4.85
Coordination performance	0.28	0.05	0.28	6.17	0.00	0.19	4.87
Dependent variable: Customer satisfaction							
Rsquare: 0.83							

5.4.4 Predictive power for finance control

Stepwise multiple regression analysis method was adopted to analyze the predictive power of each factor of the application of "C Theory" in project management for finance control. Table 4 shows that in the criterion variable of finance control, decision-making performance, control performance, creativity performance, and coordination performance reach significant levels (T value = 5.42, P value = 0.00; T value = 11.18, P value = 0.00; T value = 4.52, P value = 0.00), wherein the influence of control performance on learning and growth is the biggest, followed by that of decision-making performance. The standardized regression coefficients of the three independent variables are positive, indicating that their influences on learning and growth are positive. The degrees of tolerance are about between 2 and 3. The expansion coefficients of variation are below 5, lower than the evaluation index value of 10, indicating that the issue of multicollinearity among the independent variables is not obvious.

Table 5. Predictive Power of Project Management in Finance Control.

	Unstandardized Coefficient		Standardized Coefficient	t	Significance	Multicollinearity Statistics	
	Estimated value of B	Standard error	Beta distribution			Tolerance	VIF
(Constant)	0.00	0.07		0.05	0.96		
Decision-making performance	0.25	0.04	0.22	5.42	0.00	0.26	3.87
Control performance	0.56	0.05	0.53	11.18	0.00	0.18	4.44
Creativity performance	0.23	0.05	0.21	4.52	0.00	0.19	4.15
Dependent variable: Finance control							
Rsquare: 0.82							

6. Conclusion and suggestions

According to the results of this study, it can be seen that for the differences of social variables and in terms of female, young employees, low education backgrounds, agriculture, forestry, animal husbandry, fishery, and production and manufacturing practitioners, average employees, organizations

with short history and middle and small scales, measures like training courses of project management, introduction of the knowledge system, procedures, and methods of project management, enhancement of the function of project management and organizational maturity, that enhancement of the application of "C Theory" in project management shall be adopted to enhance the efficiency and performances of organizations. Furthermore, there is a highly positive correlation between the application of "C Theory" in project management and organizational performance. There are also highly positive correlations among creativity performance, learning and growth, and customer satisfaction, between adaptability performance and internal operation, and between control performance and finance control. In summary, this study suggests that in order to promote organizational performance, during project management the decision-making performance of Taoism, control performance of Legalism, tactics performance of School of Military Strategists, creative performance of Mohism, and coordination performance of Confucianism of "C Theory" can all be fully used to give full play to the benefits of decision-making function, control function, adaptability function, creativity function, and coordination function and to improve the practical benefits of project management so as to enhance organizational performance, such as learning and growth, internal operation, customer satisfaction, and finance control.

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