Team Members' Flow Experiences and their Influence on Project Performance

Dr. Li-Chuan Chu, Associate professor of Department of Business Administration,
Nanhua University, Taiwan
Chen-Lin Lee, Ph.D. student, Corresponding author, Department of Business Administration,
Nanhua University/ Buddhist Dalin Tzu-Chi General Hospital
Chang-Jer Wu, Ph.D. student, Department of Business Administration,
Nanhua University, Taiwan
Kun-Feng Hsu, Ph.D. student, Department of Business Administration,
Nanhua University, Taiwan

ABSTRACT

This study focuses on whether team members' flow experiences influence project performance. Three companies were selected as case studies: a telecom company, an automotive parts supplier, and a power supply company. In this study, we interviewed project managers and project team members at each company who we expected to provide varied information and different points of view. Our interviews yielded the following conclusions: (1) When team members work collaboratively and interact, the flow experience is facilitated; (2) Project managers play an important role in leadership style; (3) The flow experience's increased costs resulting from maintaining the project's quality are acceptable to company administrators and project managers; and (4) By building a specific atmosphere to help team members fall into the flow experience, this experience is facilitated. Team performance, cost, and deadline pressure promote the team members' ability to obtain flow experience.
Keywords: Flow Theory, Flow Experience, Project Performance

INTRODUCTION

R&D competency is vital for a company's competitive performance. As technology advances, a project team's efforts to target products and services not only spurs innovation, but also ensures that the advantage of operating with the new technology leader, when faced with the technical threshold of a higher difficulty of challenge, can only be exceeded based on the competitive environment.

In project teams, most members are from different professional backgrounds or technical capacities, and based on different tasks, personnel properly allocates the division of labor and mode of working collaboratively toward a specific goal through the process of communication and coordination to complete tasks. In addition, there is a shared responsibility for the project's success or failure (Bubshait & Farooq, 1999; Ford & McLaughlin, 1992; McFletcher, 1996). Project team faced with higher pressure naturally feels more challenged, but the more staff face project challenges, the greater the need for R&D work. Huang (1988) found a higher demand for those who accept more advanced technology and challenging work. Other scholars have found that when people have high-growth demand characteristics, self-drive, and proper work requirements, they stay focused more easily on work, overcome challenges and uncertainties (Couger & Zawacki, 1990; Farn, Couger, Daniel& Sung, 1993).

Hackman and Oldham's Job Characteristic Model (1975) indicate that individual job core dimensions impact psychological states of mind, high growth people need the content of their work to be challenging and to require independent thinking. If the whole project team is composed of members belonging to this high growth category because when growth is driven by strong self-drive, they have the courage to take risks and face uncertain challenges to accomplish set goals (Humphrey, 1997). By integrating flow theory into this view, which states that skill and challenges must be balanced, it can be self-driven toward higher and more complex levels (Csikszentmihalyi, 1990). Self-growth, harmony, self-enjoyment, the "merging of activity and awareness," and involvement allows people to enter the flow experience; very difficult tasks may therefore be completed, and people can handle more challenges than at the previous level, which gives them more positive self-feelings and enables them to work harder to learn new skills (Csikszentmihalyi & Csikszentmihalyi, 1988; Csikszentmihalyi & LeFevre, 1989).

Researchers have identified flow experiences during many different activities; including on sports players' academic performances (Jackson et al., 1998) and music performances (O'Neil, 1999; Byrne et al., 2003). In addition, Demerouti (2006) studied employees in different industries in the Netherlands, finding that when employees have clear goals to guide and conscientiousness their work, frequent flow experience were beneficial for in-role and extra-role performance as rated colleagues. Barrick and Mount (2005) believe that, when motivation is combined with flow experience, it may have a multiplicative effect on performance. Chu, Lan, and Lee (2010) studied personnel in high-tech companies in Taiwan R&D, and found that a high degree of concentration can lead to flow experience, and that this experience helps enhance the quality of work on corporate R&D.

In conclusion, flow experience has a positive impact on performance; however, it should be stressed that at present, few studies on project teams investigate what flow experience can produce at the team level, and through mutual influence, it can play a role in improving project performance. Thus, this study uses in-depth interviews to research project teams in different industries for multiple comparison analysis to understand the expectations of dynamic changes in an entire project team.

LITERATURE REVIEW

Concepts and definitions of the flow experience

Psychologist Mihaly Csikszentmihalyi began research on the flow concept in 1975 by examining artists, athletes, musicians, chess masters, and surgeons; these people have individual preferences for professional activities and often spend a considerable amount of time and energy, have long-term concentration on their jobs, and enjoy their work. Csikszentmihalyi thought that people conducting activities with context and focus can filter out all irrelevant perceptions when in the flow state. According to the original definition by Csikszentmihalyi (1975), flow is a common experience for participants in the model, in which they feel as if they are drawn into a consciousness that is concentrated in a narrow range, guided only by specific and clear objectives, clear feedback, and reactions to the environment.

Csikszentmihalyi (1975) argued that when people are immersed in an activity, the surrounding environment and distractions are excluded from consciousness, and their sense of time becomes distorted, self-consciousness disappears, they enjoy a self-fulfilling satisfaction, and ideas come to the fore. This uniquely human experience is also known as the optimal experience; scholars have compared this experience to Maslow (1970), who proposed the peak experience, wherein people enter a state of self-realization in an extremely excited state of mind. People in this state feel unable to stop, and these elements combine to form a deep sense of pleasure, yielding tremendous rewards, which is why people

are willing to continue to reengage in certain activities (Webster & Martocchio, 1992; Webster et al., 1993; Csikszentmihalyi, 1990).

The flow in their work should be able to strengthen employees' intrinsic motivation and promote individual efforts to progress. On the application of flow, some researchers studied leisure (Csikszentmihalyi & LeFevre, 1989; Ellis et al., 1994); others have studied the state of mind of people addicted to online games (Ghani & Deshpande, 1994; Ghani, 1995; Griffiths & Dancaster, 1995), and more studies will be applied to the flow experience of Internet marketing, Web site design, and the presentation of methods and leads to more people (Hoffman & Novak, 1996; Koufaris, 2002; Skadberg & Kimmel, 2004).

The definition of the project team

In defining the project team, Mears and Voehl (1994) said that the project team is composed of different functions and departments; important tasks must be completed by the assigned entity targeted for the task. the project team definition has been adjusted for globalization, project team members from different countries, different business units, different functions, and members with particular expertise on strategic tasks (Vittal & Michael, 2010; Adenfelt & Lagerstrom, 2006).

Project teams are produced in the hopes that, through interdepartmental cooperation and interaction, correct transfer of information and knowledge sharing, and increased operational efficiency of the entire project, the project implementation process will yield positive effects. For project members, the integration of a proper distribution of tasks, team cohesion, and continuity of the project team should be taken very seriously. Herzberg (1968) proposed the two factors theory, stating that human motivation is controlled by two factors: hygiene factors and motivating factors; hygiene factors include health factors from the external environment to prevent job dissatisfaction, and motivating factors include policy and administration; higher-level supervision; working environment; relationships with superiors, relationships with colleagues of equal rank, and relationships with subordinates; salary; personal life; work status; job security; achievement; identity; challenges of the work itself, responsibility, promotion, professional, and personal growth, and so on.

Project managers, driven by incentives, can encourage morale and enthusiasm for the work and stimulate work potential. Their main purpose is to improve team performance; however, if team members are unmotivated, incentives must be in place to encourage team member compliance so long as it is possible to trigger a strong incentive to work more, to achieve effective incentive conditions.

The concept of project performance

Performance refers to efficiency, effectiveness, and efficacy. Byars and Rue (2001) defined performance as an employee performing duties on various work tasks to achieve objectives, and the extent to which these reflect the employee's achievement. Borman and Motowidlo (1993) defined job performance as relevant to the objectives of organizational behavior, which depends on individual contributions to organizational goals to measure the degree. Schermerhorn (1989) argued it also involves the terms to which people or groups undertake a project for completed operational performance for quality and quantity. French and Seward (1983) stated that the employee or job performance achieved targets group benefits, not only as a measure of employee productivity, but also for appropriate rewards, incentives, assignments, and promotions, and so forth.

Project performance evaluation scholars have different views. Bore (1999) proposed that companies evaluation Project performance should be past, present, and future of different time points to be measured.

Keller, Kedia, and Julian (1995) suggested that the project should be assessed on productivity performance. Researchers argued that project team performance is difficult to assess because of a lack of clear, structured project team management and evaluation of targets, as well as the uncertainty of R&D results (Chen, 2007; Griffin & Page, 1993).

Project performance indicators are not the only measurement technique; in a multilevel and extensive assessment, evaluation feedback must be ready, timely, comprehensive, and can be controlled by other considerations. In this regard, Chen et al. (2007) grouped project team performance measures into three main categories: (1) dimensions of technological capabilities, which include technical quality, technology integration, technical breadth, and related technology; (2) other organizations for commercial value surface, which includes business goals, market impact, customer satisfaction, and so on; and (3) process management, which emphasizes the efficiency of the process of project execution.

Project performance is always an important reference for the implementation of capacity from the enterprise, project manager, or project team member's viewpoint. The goal is to make each and every member show a positive attitude and positive behavior, and then to improve organizational performance. Special case team members analyze the manner displayed in the work, the required skills and expertise available, the role of team member duties and responsibilities, and team member consensus with or without common goals; each affects whether project performance is good or bad.

METHODOLOGY

This study was conducted through in-depth interviews; according to Berg (1998), qualitative research can reveal the meaning of individual experiences of a phenomenon or experience to find the reasons behind facts. From the perspective of this study, to further understand the experiences of project team members, collected data deepen the level of individual perception and attitude, garnering greater understanding (Yin, 1994).

Case studies: basic information on companies and respondents

This study selected three companies in different industries as case studies in Taiwan, namely, a telecommunications company, an auto parts supplier, and a power supply manufacturer. Case interviews were conducted with appropriate candidates in each business, including the project manager and project team members to obtain information from different viewpoints. In our telecom case (case A), the composition of the project team, according to the project's parameters set by the project manager and the content of the subject, determines the selection of appropriate personnel and units, team members, required technology, understanding, and execution. After the project, team members return to their original units. The frequency of project team meetings depends on project duration and can be monthly or weekly, with a typical meeting lasting approximately two hours.

For the auto parts supplier (case B), the composition of project teams was a result of project requirements assigned by the director of professional personnel based on team members' professional backgrounds, experience, and ability to develop expertise. The number of meetings for the project depends on mobilization, the case's time sensitivity, and the progress of various tasks to facilitate project status control.

The power supply manufacturer case (case C) addresses the company's need to improve the project, its optimization system as the main target, the company's external recruitment of appropriate personnel,

and the team members' competence to select internal staff units. The team meets occasionally, and internal and external communication is always in progress.

Data collection and interview procedures

Each company's administration agreed to arrangements for the meeting rooms in each company, interviews for all staff, and they ensured that the interviews would remain free from outside interference; respondents agreed to the recording of the interviews. Before being interviewed, respondents were explained of the significance of flow experience and they confirmed that they have had the experience; in-depth interviews were then conducted using the following outline: (1) in your opinion, what are the key factors that enabled you to generate the flow experience? (e.g., personal project experience, absence of work disruptions, project manager's leadership style, or harmonious group atmosphere) (2) Do you agree, whether the team members had in mind was too immersed in the flow experience, resulting in delays in team progress and how to solve this problem? (3) Do you agree, when you and your project team members discussed problems, were team members keen to discuss the issue, and what amount of involuntary time was spent ignoring the problem? (4) To what degree does the flow experience impact the quality and results of the project? Is the impact positive or negative? (5) when the flow experience's increased costs to the company or the project manager seem acceptable? And (6) when the team is "brainstorming," do the majority of team members have the flow experience?

Through a content analysis of interviews, organizational documents, and on-site observations, team members can go into detail describe how often flow experiences occur, how the flow experience of team members affect project performance, what factors promote or impede the flow experience, what makes the employees more willing to work, what helps enhance their job performance, and what improves the overall performance of the project team.

Analysis

The main focus of the study is for respondents to identify their views on problems, to determine differentiation in responses, and to decipher the contents of workers' views toward their own work. Accordingly, interviewers expressed their views on the content of the interview by compiling the information before selecting the important contents of each answer, and then further summarizing and analyzing this information as a basis for inference.

Table1: Background information of respondents

Participant enterprise	Participant respondents	Gender	Duties	work experience with the duties
A	A 1	male	Manager	18 years
	A 2	male	Project Manager	32 years
	A 3	male	Chief	30 years
B	B 1	male	Development Engineering	3 years
	B 2	male	Development Assistant Manager	9 years
	B 3	male	Development Project Manager	10 years
	B 4	female	Procurement Specialist	10 years
C	C 1	male	Project Manager - Responsible for the text control project	3.1 years
	C 2	female	Project Manager - Responsible for the	1.4 years

			operation and management manager	
C 3	male	Project Manager - Responsible for the Information Management Project	1.5 years
C 4	female	Engineer - Responsible for programming	0.9 years
C 5	male	Engineer - Responsible for programming	0.6 years

RESULTS

The purpose of this study was to explore the project team members' flow experience, whether a correlation exists between work performance and flow experience, and through the interview process, to assess the respondents' actual work experience. Through follow-up sorting, subsequent order analysis, induction, questioning the flow state of interviewees, and determining the flow experience for job performance, and so on, we developed several propositions.

Proposition 1. Project manager's leadership style and a congenial work atmosphere can lead the team into the flow state.

The interviews investigated the project manager's leadership style in leading members to their current state of mind—the project manager is principally expected to make all members of the team get along well (A1, B1), create positive team-building consensus and cohesion (B2, B3, B4), facilitate clear and decisive resolutions to avoid differences of opinion, and lead the team members to actively work toward a clear goal (A2, A3). Other respondents considered job characteristic factors, the amount of investment in the work (C2, C4), and whether work conditions were free from outside interference (C3).

Proposition 2. Sufficient grasp of the work session can effectively prevent overflow immersion experiences.

Team members were interviewed on the process of the flow experience, and respondents generally supported the view that the project manager must have a clear grasp of the timeliness of the work (A1, B2, B3, B4, C4, C5), that the process is more difficult if problems are encountered, in which case help or resources must be sought (A2, B1, B4, C1, C2), that setting aside or temporarily ignoring the problem does not solve it, that there is motivation to find the crux of the problem.

Proposition 3. New technology development can guide team members to the flow state.

In the operation of the project process, to solve technical issues, team members have serious discussions on processing time to increase work efficiency (A1, B2, B3) and to prioritize concerns (A1, A3, B2, B4, C1), especially on the development of new technology, which will produce some of the issues that can be discussed.

Proposition 4. Flow experience of team members helps enhance work quality.

When someone enters the flow experience, he or she is focused, resulting in improved product design quality and performance; the majority of respondents believe that the flow experience of project implementation has a positive impact (A1, A2, A3, B2, B3, B4, B5, C1, C3, C4, C5), where they can concentrate on doing their jobs with a cheerful mood because their thoughts are clearer and their logical ideas are complete; thus, they do not lose too much time and produce a quality product (B3).

Proposition 5. Having team members in the flow experience does not lower R&D costs.

When the project team is immersed in the flow experience, it may increase the enterprise's tangible or intangible costs for the entire project. It is important for the project to achieve cost efficiency and increase efforts to prevent the possibility of risk (C2), and to clearly control every aspect and process (C3). The flow experience situation can be increased if the cost is reasonable for maintaining the quality of the company's products, if management finds the cost increase reasonable, if the increase can contribute to risk reduction, and if management believes that, out of necessity, the costs can be accepted (A1, A2, B1, B2, C1, C4, and C5). Temporarily low costs in the present with problems not completely resolved may bring greater losses in the future (B3); however, if the cost increases lead to more business opportunities and economic benefits that contribute to the effectiveness and the position of the company, or if the project manager supports these costs (A3, B2, B3).

Proposition 6. Brainstorming methods are likely to lead members to flow situations.

In brainstorming, team members focus on a particular part of the problem, are less easily distracted, and make more positive comments (A1, B4). Simultaneously, each member can produce a congenial atmosphere for the entry of the flow situation (A3, B2, and B3).

DISUSSION OF FINDINGS AND IMPLICATIONS

This research completes a case study of three companies, namely, a telecommunications company, an auto parts supplier, and a power supply manufacturer. Interviews with the project team members and the project manager were analyzed after the interviews, yielding the following conclusions:

Good understanding of interaction facilitates member solidarity.

Team members with good interaction skills, proper understanding, compatible personalities, and a common goal easily enter the flow experience. If the team wants the process in operation, it overcomes particular problems through discussion, especially when new technology is developed to facilitate the process. If a new subject is interesting, it may cause heated discussions, or keen team members may have a wonderful time discussing the issue.

Outgoing, enthusiastic personalities and calm dispositions are prone to produce the flow experience.

Respondents consistently stated that characteristics more prone to create the flow phenomenon include an ability to accept challenges and render quick responses, enthusiastic team members, and a strong concentration of people. Therefore, in selecting project team members, active consideration must be given to positive and calm personality traits. For job characteristics and flow experiences, the respondents believed that the probability of overcoming a problem when working in the flow state is higher and the team member's flow experience can be produced by team interaction.

Project managers play a vital role in leadership style by bringing team members to the flow experience.

Leadership style is crucial; the project manager attempts to make the project more harmonious for all members of the team, has them become more involved in projects, develops a more professional work environment, and coordinates the work of competent team members, which can be difficult. When the project staff invests themselves in a study, the project manager must have a clear grasp of every aspect of

the work while giving appropriate corrections for problems that may hamper the team's progress because a number of issues can affect the project schedule. In addition, the project manager must master the project's core values with foresight, leadership, and coordination capacity, which are crucial with respect to the views of the project team members, to avoid conflict.

Flow experience is a key factor in promoting quality and stability.

For increased costs caused by the flow experience, higher costs are supported by case or project managers and by the company when members enter the flow state because the quality of project implementation has effect, which the respondents say creates more good than harm. In contrast to increased costs created by the flow experience, quality costs are an important part of the project for the prevention of cost increases. In the assessment process, increased costs that bring more business opportunities and economic benefits are worthwhile, particularly in the corporate system; thus, the company or the project manager supports the increased costs.

The use of brainstorming methods helps create a harmonious atmosphere among members.

Brainstorming methods are optimal when members of different backgrounds gather ideas for problem solving. Brainstorming team members should focus, be less distracted, and should highlight the more positive views of the publication. Each team member usually takes advantage of the meeting, encounters issues, and thus, involves other members in brainstorming solutions; the process of thinking of or discussing can generate new ideas, and can create a lively discussion on the processes, providing more opinions and ideas, thereby creating a harmonious atmosphere and ambience for members who have the opportunity to enter the flow experience.

RECOMMENDATIONS AND LIMITATIONS FOR FUTURE RESEARCH

Based on the data garnered in the interview, the project manager's leadership style and job characteristics may lead project team members to the flow experience (flow state), which allows the project manager to coordinate competent workers. In addition, the project team should be committed to a more harmonious coexistence, to gathering consensus and consistency of values, to minimizing worries, and to focusing on project execution. The project manager must intend to achieve the overall team goals because the main considerations when people are too immersed in the flow experience include delays in the progress of the overall project, or deviation from normal operations; the project manager must establish appropriate control points when the project is proceeding in a direction that is clear, and must be in complete control of the project's progress, regardless of the enthusiasm of team members. In addition, the interviewees stated that the consistency of flow experiences that contribute to the stability of the quality of the work reduces the risk of loss; in other words, when team members enter the flow state, it helps the team's performance and yields a positive effect.

In an enterprise manager's viewpoint, when an employee's job performance improves, it contributes to the overall performance of organizations or teams; if the staffs improve their work and their enjoyment of their work, they stay focused. Managers must direct corporate employees on how to provide a conducive environment for the flow experience produced, must provide for timeliness, must allow for job autonomy, and can direct a staff with internal motivation to learn, face difficulties or bottlenecks, and take the initiative to enhance technical capacity. As Csikszentmihalyi (1990) stated, when skills and challenges

are balanced, employees are able to drive themselves toward a higher and more complex level to enhance the quality of work and contribute their talents while enjoying the work in meaning and experience.

For different tasks a project team establishes, this research study is limited by the difficulty of the investigation, the willingness of the respondents, time constraints, and cost factors. In addition, we used only three areas of domestic enterprises as case studies; the research results were made by inference, and thus, cannot be generalized to all areas, but the results are still valuable. Some scholars at home and abroad study flow for argumentation, general Web browsing, online game-related behavior, or as the main direction in management. At this point, future research is needed to study these areas further in-depth.

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