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ARE SMALL-SCALE INNOVATIONS BY PARALLEL TEAMS CAPABLE OF ENHANCING ORGANIZATIONAL PERFORMANCE? EMPIRICAL EVIDENCE FROM MALAYSIAN MANAGERS

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Abstract:

Parallel teams such as quality circles have been practiced by many organizations over the past decades to improve their operational performance. The practice, however, does not always produce a desirable result in all organizations. While many organizations from over the world have reported success stories on the practice of parallel team, significant numbers of organizations in Britain and Mexico have disengaged with the practice. Nevertheless, China and Malaysia are still actively endorsing the adoption of parallel team for productivity in various industries. Although the positive impacts of small-scale innovation by parallel teams on operational performance are already clear, its impact on the performance at the organizational level is still vague. To confirm this, 188 managers from 33 Malaysian organizations that actively practicing parallel team for operational performance were involved in the questionnaire-based survey. The results from regression analyses show that the Malaysian managers have a significant belief

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that innovations by parallel team indeed capable of enhancing performance not only at the operational level, but also to the organizational level.

Keywords:

Operational Improvement, Organizational Performance, Parallel Team, Quality Circle, Team Innovation.

Introduction

Parallel team consists of people from the same or different department who gather to improve or solve problems at operational level (Cohen & Bailey, 1997). Examples of parallel team include problem- solving team and quality circle (QC). Innovation had happened meaningfully in parallel team (Barrick & Alexander, 1987; Hanna, Newman, & Johnson, 2000).

QC-related published research articles have decreased significantly since a decade ago. It has been reported as an outdated approach towards total quality management which has not been popular in Britain (Hill, 2009) and Mexico (Guıette-Barbosa, 2021). Nevertheless, the adoption of parallel team for operational performance has recently become popular within a healthcare industry in China (D, 2020; Tang, 2020), Taiwan (Wei, 2018) and Europe (Rohrbasser, 2018, 2019). In Malaysia, to this year 2024, the practices of parallel team in organization are still flourishing, which can be evidenced by the active participations of companies in a yearly convention of international quality and productivity organized by Malaysian government agency. At this conference, the QC from various Malaysian industries gather to share their successful experience in transforming their operational performance.

Since more than a decade, there is no doubt that the adoption of parallel team in organization has been reported to have positive impacts on individual employees behaviour such as participation, job satisfaction and commitment, attitude and absenteeism (Abo-Alhol, Ismail, Sapuan, & Hamdan, 2005; Elmuti, 1989; Marks, Hackett, Mirvis, & Grady, 1986; Pereira & Osburn, 2007), which in turn has increased performance at operational level through productivity, cost savings and quality (Barrick & Alexander, 1987; Delarue, Van Hootegem, Procter, & Burridge, 2008; Glassop, 2002; Hanna et al., 2000; Ismail, 2009).

Although there have been much evidences on the positive impacts of innovations by QC at the operational performance (for examples: Barrick & Alexander, 1992; Caili, 2021; Cateau, 2021; Fang, 2021; Hernadewita, 2019; Ismail, 2009; Jingxian, 2020; Kai, 2021; Leite, 2018; Lin, 2017; Sillince & Sykes, 1996; Tang, 2020; Tong, 2018), there is still no evidence on how far the small-scale innovations by the QC at the operational level are deemed significant to the performance at the organizational level. To what extent managers consider the innovations by the QC have improved performance at the organizational level? Moreover, the link between team outcome and organizational performance is still inadequate (Delarue et al., 2008). So far, only work-teams and top management teams (TMTs) have been frequently examined to have a significant contribution to the organizational performance. Although a capacity of parallel team towards organizational performance has been long suggested in more than 15 years ago

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(Mathieu, Maynard, Rapp, & Gilson, 2008), it currently has not yet been examined in any mainstream research.

This is important to be studied, because QC implementation has shown a significant disengagement in many organizations in Britain (Hill, 2009) and Mexico (Guırette-Barbosa, 2021). One of the reasons for disengagement is related to poor support from the management. Logically, low management support could be due to lack of priority given to the practices. Lacking priority could possibly stem from the sceptical perception that QC are not significant for organizational performance. Thus, this research would be able to provide insights if the managers in Malaysia perceive small-scale innovations by parallel teams are significantly enhancing organizational performance.

Literature Review

A parallel team is a group of people from the same or different department who gather together to make improvement or solve problems at a departmental level (Cohen & Bailey, 1997). Examples of a parallel team which has been commonly utilized in many organizations are quality circles (QC), that was popularized by Ishikawa (1985). QC refers to a "small group of workers, from the same workplace, who meet together on a regular, voluntary basis to perform quality control activities and engage in self and mutual development". Their main functions are to identify the work-related problems and analyze it by using statistical and problem-solving techniques and to propose solutions to management for decision and implementation (Barrick & Alexander, 1992; Greenbaum, Kaplan, & Metlay, 1988; Ramsing & Blair, 1982).

Classic literature has clearly explained the main function of parallel team for operational performance. Barrick and Alexander (1987) suggested that the problem-solving procedures used by parallel team could modify the work processes, thereby influencing productivity and operational performance. The main activities emphasised in the team are to address productivity problems and implement solutions to improve both the quality and quantity of services or products provided. Hanna, Newman and Johnson (2000) proposed that QCs have a strong influence on operational performance. Steel and Shane (1986) also highlighted that QCs are designed to influence work performance. Mohrman and Ledford (1985) argued that teams can improve operational performance to achieve better organizational performance. All activities carried out by the QC were aimed at producing innovation. Innovation involves the initiation or discovery of an idea, technology, or process that is new to the organizational setting followed by the implementation of the idea (Dougherty & Hardy, 1996; Klein & Sorra, 1996). In a nutshell, a QC was usually developed in an organization to create innovation to improve daily operation at a departmental level. Thus, there have been significant number of research that have focused the QC benefits on productivity, cost savings and quality (for examples: Barrick & Alexander, 1992; Caili, 2021; Cateau, 2021; Fang, 2021; Hernadewita, 2019; Ismail, 2009; Jingxian, 2020; Kai, 2021; Leite, 2018; Lin, 2017; Sillince & Sykes, 1996; Tang, 2020; Tong, 2018). All the above research shows positive operational improvement resulting from the QC implementation. Recently, many research have shown an inclined positive results from the adoption of QC for operational performance especially in China (D, 2020; Tang, 2020), Taiwan (Wei, 2018) and Europe (Rohrbasser, 2018, 2019).

In the past decades, the QC-related researches have been focusing around the identification of contingency factors for successful QC implementation, problems as well as caveats (Adam Jr, 1991; Ismail, 2009; Sillince & Sykes, 1996; Steel, Mento, Dilla, Ovalle Ii, & Lloyd, 1985;

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Sverker, 1992) and its contribution on employees' behavior such as participation, job satisfaction and commitment, attitude and absenteeism (Abo-Alhol et al., 2005; Elmuti, 1989; Marks et al., 1986; Pereira & Osburn, 2007).

There has been almost no doubt about the positive impacts of using parallel teams for operational improvement. However, the extent to which the small innovations by parallel team at the operational performance is considered significant on organizational performance is still in vague. The literature has long suggested that organizational performance is directly tied to the function and outcomes of the parallel teams (Glassop, 2002). In the classic literature by Barrick and Alexander (1987) and Steel and Shane (1986) have suggested that activities in quality circles could modify the work processes, thus influencing productivity and organizational performance. Similarly, Delarue et. al (2008) made a clear conception that teams can create a "performance chain" on operational performance which in turn contributes to organizational performance. The theories suggest that outcomes at a parallel team level have their own capacity to improve operational and organizational performance. The relationship between operational and organizational performance has long been well modelled by several authors (Hayes & Wheelwright, 1984; Porter, 1980; Skinner, 1974). Nevertheless, the influence of team outcome towards organizational performance has been commonly examined only in the work-team and top management team, but not in the context of parallel team.

With the above literature, this research examined the extent to which small-scale innovations by the parallel teams are perceived significant for operational and organizational performances. Therefore, the following two hypotheses are tested for this study, and this is visualized in the conceptual framework Figure 1.

Hypothesis H1: Innovations by the parallel teams have significantly improved operational performance.
Hypothesis H2: Operational performances improved by the innovations in parallel teams have significantly enhanced organizational performance.

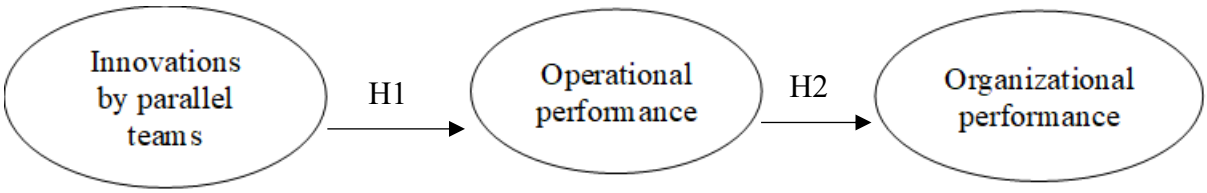

Figure 1: Conceptual Framework

Method

The research method was designed to be a quantitative causal study that utilised a primary data collected from respondents using questionnaires.

Sampling and Data Collection

The population of this study are Malaysian departmental managers who engage directly with the innovations executed by parallel teams in their organizations. The data collection was a using a cross-sectional approach.

Reaching the right departmental managers has been the main challenge of this research. Since there is no legit database to trace Malaysian companies that actively adopted parallel teams for

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their operational performance, convenient sampling was utilized to choose the sample from the population. This research conveniently selected the samples of population based on the list of organizations that participated in the ICC National Convention Kuala Lumpur, that was organized by the Malaysia Productivity Corporation (MPC).

The MPC provided this study a list of 89 Malaysian organizations which represent 4 main economic sectors in Malaysia i.e. manufacturing, services, public and electrical sectors. All the 89 organizations were contacted and invited via email to participate in this research. The Objectives of the research were made clear. Out of 89, only 33 organizations agreed to participate. From the 33 organizations, 249 departmental managers were identified and contacted. Thus, 249 packs of questionnaires were prepared with self-addressed envelopes and couriered out to the 33 organizations. Each of questionnaire was attached with a support letter from the MPC Director to enhance a sense of commitment among respondents. Finally, only a total of 188 responded questionnaires were received, usable, which reflects a response rate of 75% out of 249 population and considered to be sufficient as it represents more than a half.

Measurement of Variables and Reliability

The measuring items in the questionnaire were adapted from the previous literature to measure a departmental manager's perception on 1) the innovation level of a respective ICC in his/her department, 2) to which extent the innovations made by the ICC have improved operational performance in their department, 3) to which extent operational performance that was improved by the innovations of ICC contributes to their organizational performance. Thus, the questionnaire measures three main constructs i.e. team innovation, operational performance, and organizational performance, with a six-point Likert scale, which ranged from one (strongly disagree) to six (strongly agree).

Table 1 : Measurement Items and Reliability

No. of item	Variable	Item	Sources	Chronbach's Alpha
7	Team innovation	This team generates many new ideas, methods, or procedures to improve work-related problems in this department.	Anderson and West (1996;1998)	0.96
		This team always considers new and alternative methods and procedures to improve work-related problems in this department.		
		This team implements new ideas that improve work-related problems in this department.		
		This team implements new ideas that have positive consequences for this department.		
		This team implements new ideas that change the present situation.		
		This team generates unique ideas.		

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		This team implements changes that benefit this department.		
5	Operational performance	Innovations by this team have improved work-related problem in my department	Davis et al., (2003)	0.95
		Innovations by this team have improved operational productivity of my department	Canel & Kadipasaoglu (2002)	
		Innovations by this team have improved quality of product/service in my department**.**		
		Innovations by this team have minimized operational cost in my department.		
		Innovations by this team have improved operational performance of my department	Hanna, Newman & Johnson (2000)	
5	Organizational performance	Innovations by this team have improved operational performance of this department, which contributed to the organization's vision and mission.	Richard et al (2009)	0.94
		Innovations by this team have improved operational performance of this department, thus meeting management expectation.		
		Innovations by this team have improved operational performance of this department, which contributed to customers' satisfaction.	Delaney & Huselid (1996) Harris (1995)	
		Innovations by this team have improved operational performance of this department, which contributed to the organization's image.	Labianca et al., (2001), Whetten and Mackey, (2002)	
		Innovations by this team have improved operational performance of this department that contributed to the overall company performance.		

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Five items were used to measure the extent of operational performance improved by innovations of parallel teams. Departmental managers were required to indicate to which extent the innovations made by the parallel team in his/her department have significantly solved work-problem, improved operational productivity, improved quality of product/service, minimized operational cost and improved overall operational performance in their department. The measuring items for operational performance displayed in the Table 1 were adapted based on the literature. The literature highlighted activities in a parallel team such as work processes modification, thereby influencing productivity and operational performance (Barrick & Alexander, 1987). This has been strongly rationalized by Steel and Shane (1986), Hanna, Newman and Johnson (2000), Millson and Kirk-Smith, (1996) and Davis et al. (2003), who asserted that QCs function to improve operational performance by identifying, investigating, analysing and solving work-related problems in their departments. The measuring items also considered the elements of operational performance of minimising costs, improving quality, and increasing productivity (Banker, Field, Schroeder, & Sinha, 1996; Canel & Kadipasaoglu, 2002; Ebrahimpour & Ansari, 1988; Zailani, 1998). Thus, operational performance was measured by improvements on work-related process, productivity, quality, and cost.

To measure and organizational performance, all items were also adapted from various literature. For example, Richard et al. (2009) suggested that organizational performance can be evaluated based on the respective organizational context such as management expectations or to some other benchmark. Therefore, the first pair of statements require respondents to rate how much innovations made by a parallel team on their departmental operation have met management expectation and contributed to their organizations' visions and missions. Organizational performance measuring item also captures customer satisfaction element (Canel & Kadipasaoglu, 2002; Delaney & Huselid, 1996; Goh, 2000; Harris, 1995; Konidari & Abernot, 2006; Stevenson, 2007) and organizational image (Labianca, Fairbank, Thomas, Gioia, & Umphress, 2001; Whetten & Mackey, 2002). Hence, this study measures organizational performance based on mission and vision achievement, management expectation, customer satisfaction and organizational image.

To ensure the goodness of the measurement, reliability test was conducted as shown in Table 1, indicating all scores for Cronbach's alpha are above 0.9, which are considered as highly reliable (Hair, Black, Babin, & Anderson, 2013).

Analyses of Data

All the data analyses were executed with IBM SPSS Statistics. Before the hypotheses testing, the reliability test of variable measurement was checked as displayed in the Table 1 above. Descriptive statistics were generated to understand the tabulation of respondents across economic sectors. To confirm if small innovations by parallel teams capable to enhance operational and organizational performances, regression analyses were executed. Firstly, the perceived team innovation was regressed towards operational performance. Secondly, operational performance was regressed towards organizational performance. The unit of analysis for all variables is an individual.

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Results

Descriptive Statistics

The Table 2 below reports the industrial background of the 188 departmental managers. Half of them were from the manufacturing sector, and the remaining were from the service, public and electrical sectors.

Table 2: Sector of Departmental Manager.

Sector	Number of Departmental managers	Percentage (per cent)
Manufacturing	96	51
Service	43	23
Public	33	18
Electrical	16	8
Total	188	100

The Table 3 below shows high mean for three variables (4.65-4.66) and close to each other, with standard deviation below than 1. The mean reflects high agreement among the managers on the impacts of small-scale innovations by parallel team on operational and organizational performances.

Table 3: Mean of Variable.

Variable	Mean	SD
Team innovation	4.65	0.84
Operational Performance	4.66	0.89
Organizational Performance	4.66	0.85
Note: N = 188		

Hypothesis Testing

Regression analysis was used to test the hypothesis H1 and H2. In table 4, with R-square value higher than 0.70 respectively, both hypotheses were supported. The hypothesis H1 that states the influence of innovation by parallel teams on the operational performances, is proven to be

Table 4: Regression Analyses

	Dependent variable			
	Operational performance		Organizational performance	
Predictor	*Coefficient*	*SE*	*Coefficient*	*SE*
Team Innovation	*0.897***	*0.041*	-	-
Operational Performance	-	-	*0.836***	*0.034*
R^2	*0.723*		*0.769*	

Notes: N=188; unstandardized regression coefficients are reported; **p<0.01(two-tailed test).

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significant (coeff = 0.897, p<0.01). The results for hypothesis H2 that stipulates operational performance resulted from the innovations by parallel team is also supported to have a significant impact on organizational performance (coeff = 0.836, p<0.01).

Discussion

Results of this research suggested that innovations by parallel teams are positively significantly related to operational performance in the department where the innovations were implemented. The test results significantly supported this hypothesis and thus provided new empirical evidence to support the old studies of Barrick and Alexander (1987), Steel and Shane (1986) and Hanna, Newman and Johnson (2000), who found that the problem-solving activities of parallel teams can improve work processes, thereby influencing productivity and operational performance.

The hypothesis H2 that anticipates a significant contribution of operational performance resulted from innovations by parallel teams on organizational performance is also supported. This finding supports the link between operational and business performance which has been well modelled by several authors (e.g. Hayes & Wheelwright, 1984; Porter, 1980; Skinner, 1974). This results also provide new empirical evidence in the parallel team context and strengthens the popular theory (but still not vastly tested) of the 'performance chain' by Delarue (2008), that suggests the adoption of teams for operational improvement can contribute significantly to organizational performance.

Conclusion

Based on the discussion in the above, it is statistically sufficient to conclude that small innovations by parallel teams have improved not only departmental operations, but also organizational performance. The utilization of a parallel team as a management strategy for organizational performance has thus been perceived significant in Malaysia. Ultimately, the statistics demonstrated that Malaysian managers confirmed small innovations accomplished by parallel teams on operational performance is significantly perceived capable of enhancing organizational performance.

Besides that, this research contributes to the team-related theory, as it has focused specifically on parallel teams, a team type which is currently still inadequately addressed as a research context. To this date, only work teams and top management teams (TMTs) have been commonly concluded to have significant impacts on performance at the operational and organizational levels. Since many organizations have seriously undertaken strategies to improve their operational and organizational performance through parallel teams, this research has provided statistical evidence that small innovation generated and implemented by parallel teams is capable improving operational performance, which subsequently enhances organizational performance. These results can be used to convince managers and pitch for the right attitude and high commitments from the TMTs towards the effectiveness of practising parallel team.

This study suggests future research to include the role of national and organizational cultures into the perspectives. The reason for this suggestion is the significant number of organizations in western countries have been observed to have scepticism and stopped the parallel team practices. The future research could examine to what extent the differences in national and

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organizational culture between Asian and Western employees determine the effectiveness of practicing parallel teams for operational and organizational performances.

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