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RESEARCH ARTICLE

Team Performance in Hierarchical Versus Self-Managed Work Teams in Selected Electronics Manufacturing Company in Cebu

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An emerging paradigm shift has been pervading the work climate of many contemporary organizations—the gradual reconfiguration of hierarchical work teams to self-managed work teams or SMWTs (Cohen, Ledford, & Spreitzer, 1996; Manz, 1992). Being a "loosely coupled" system, SMWTs are characterized by autonomous decision-making (Hollenbeck & Spitzmuller, 2012). This autonomy facilitates the decision-making process within the team and leads to gains in performance. Despite the growing popularity of SMWTs throughout the years, there is a paucity of research that examined the relative effectiveness of this new form of team structure than its traditional counterpart in producing high-performing work teams. A cross-sectional study investigated the team-based performance of newly implemented SMWTs versus the existing hierarchical work teams that performed the same type of work in an electronics manufacturing company in Cebu, Philippines. The findings revealed that team performance is significantly greater among process engineers in SMWTs than among process engineers in hierarchical work teams. Nonetheless, causal inferences cannot be drawn due to the cross-sectional nature of the study design. Together, insights are offered to elucidate the benefits entailed of this organizational transition from hierarchical work teams to SMWTs in enhancing team performance.

Keywords: hierarchical work teams, loosely coupled systems, self-managed work teams, team performance

JEL Classifications: L25, M10, N65

Through the years, there has been an increased acceptance in implementing work teams into the organizational structure. The basic premise of overhauling work processes to accommodate teams is that teams increase organizational performance and that they provide a better opportunity for the attainment of organizational objectives (Ilgen, Hollenbeck, Johnson, & Jundt, 2005).

As modern firms have grown in size and have become more structurally complex, the need for a group of people who work interdependently to enact organizational aims has become increasingly vital

(Ilgen et al., 2005). Understanding the dynamics of work interdependence that pervades the organization requires disentangling its different facets (Hollenbeck & Spitzmuller, 2012). In the extant literature, one of the most extensively studied dimensions of team interdependence is decision-making (e.g., Johnson et al., 2006).

A great deal of crucial decision-making functions in the workplace is often carried out by work teams that are structured hierarchically, given the pervasiveness of these forms of teams (Humphrey, Hollenbeck, Meyer, & Ilgen, 2002; Magee & Galinsky, 2008). In a hierarchical structure, there is a coordinator or leader who oversees the entire process, in the context of teams (Bonaccio & Dalal, 2006). The mainstream hierarchical structure among contemporary organization in an array of industries, however, has been gradually reconfigured. Institutionalization of SMWTs has been steadily gaining grounds in its place (Cohen et al., 1996; Manz, 1992). Members of SMWTs possess the ability to solve job-related problems with high discretion and autonomy—offering an alternative to the conventional wisdom of hierarchical bureaucracies (Goodman, Devadas, & Griffith-Hughson, 1988).

Notable leaps have already been taken on the previous body of research, yet, a sparse number of studies have examined team performance differences with the use of SMWTs and hierarchical work teams. The current work delves into comparing the level of team performance between SMWTs and hierarchical work teams. A difference in the performance of the two types of teams could be due to the decision-making process inherent in their structure (Hollenbeck & Spitzmuller, 2012). Additionally, work design model of Hackman and Oldham (1976) is used to identify specific job characteristics that are possibly influenced by this SMWT configuration.

Review of Related Literature

Teams in Organizations

By definition, a team is an intact collection of people who are interdependent with each other (Ilgen et al., 2005). A team is also defined by Cohen and Bailey (1997) as a coherent social entity that is embedded within a larger social context (e.g., business organization). Today's workplace has continually been mandating a change of premise from work around individuals to a team-based one (Ilgen et al., 2005). This is prompted by the various organizational benefits that can be derived from utilizing work teams such as significant accelerations in productivity, product innovation, and company revenue (Katzenbach & Smith, 1993).

Cohen and Bailey (1997) stressed that the beneficial outcome brought about by using teams is a function of specific features of work task and design, which can be manipulated to facilitate the conditions for team efficiency. One of the most widely studied design variables in this respect includes team interdependence.

Interdependence in Work Teams

According to Hollenbeck and Spitzmuller (2012), teams are made up of individuals with their own identity, and these separate identities can be holistically linked, creating interdependence. There are four distinct, yet related, dimensions of team interdependence as used by the comprehensive review of Hollenbeck and Spitzmuller (2012): (a) task allocation structure, (b) reward structure, (c) communication structure, and (d) decision-making structure. The present paper focuses on the decision-making dimension.

Decision-making in work teams has garnered a great deal of scholarly interest throughout the years. An effective decision-making process is one of the central features of the functioning of a firm because of its strong implications on various organizational outcomes (Johnson et al., 2006). The collective decision that should be implemented by the team should be set in place, especially in situations in which team members disagree on the best course of action to take with the latitude of issues to be handled in the workplace. According to the review of Hollenbeck and Spitzmuller (2012), decision-making structure among teams can be typified into hierarchical and self-managed work teams.

Hierarchical Work Teams

Hierarchy appears to be one of the fundamental structural characteristics formally instituted by most organizations (Magee & Galinsky, 2008). A great deal of crucial decision-making functions in the workplace is often carried out by teams that are structured hierarchically or are externally led (Bonaccio & Dalal, 2006). Hierarchical forms of decision-making in an organization entails ranked authorities receiving input from subordinates (Humphrey et al., 2002). The concept of hierarchy has long been espoused in an organizational context for two main reasons. First, it

aids in efficient collective decision-making by giving higher ranked authorities control over important decisions in the workplace, and subordinates are expected to defer (Van Vugt, Hogan, & Kaiser, 2008). This disproportionate distribution of control among members of the organization helps the team make more quality-efficient decisions because of having the presumably competent people at the top in charge. Second, hierarchies facilitate intra-group coordination by having leaders integrate diverse information and implement the relevant decisions before decisions flow down to the lower hierarchical level (Magee & Galinsky, 2008).

Despite the apparent functionalities of hierarchy in an organization, it also comes with blunt dysfunctions. The question of when it benefits and harms teams depends on a host of factors. This is in line with contingency theory in organizations compared to the functionalist perspective outlined above (Anderson & Brown, 2010). For example, the utility of hierarchies in organizational functioning is contingent on the kinds of tasks (e.g., routine vs. complex tasks; task solutions requiring innovation or not) on which the team is working. The hierarchical structure is also associated with decision-making and communication problems because of the vertical relationship between a leader and staff. According to Carzo and Yanousas (1969), it takes longer to process information and reach with final decisions in this type of team because it passes through many levels and hierarchies within the organization.

Rethinking Work Team Structure

The bureaucratic team structure is so deeply ingrained that many organizations are resistant to changing it. There is already a fundamental mind shift in the decision-making mechanisms among many contemporary organizations—collaborative and self-managed team structures have slowly been supplanting the slow-moving hierarchical teams (Cohen et al., 1996; Manz, 1992). The superiority of hierarchical work structures has dramatically changed over the years. A survey of employee involvement practices by Lawler, Mohrman, and Ledford (1992) revealed that about 47% of Fortune 1000 companies were using self-managed work structures and 60% planning to utilize this workplace innovation in the next two years. A new management trend has notably been permeating in a wide range of organizational contexts for the past few decades, which gradually superseded the popularity of bureaucratic structure—the utilization of self-managed work teams.

Self-Managed Work Teams

Wellins, Byham, and Wilson (1991) defined SMWTs as groups of employees who assume the following responsibilities: (a) managing themselves which include planning, organizing, and controlling functions, (b) deciding on job designation of members, (c) planning their own work schedule, (d) deciding on production- or service-related matters (e.g., quality control, stoppage of product assembly), and (e) providing solutions to work-related problems. SMWTs are groups of employees who have control over the management of interdependent tasks (Goodman et al., 1988; Kirkman & Rosen, 1999). For example, in a manufacturing setting, the set of interdependent tasks may start with the procurement of raw materials, followed by product engineering and manufacturing, and all other supplementary processes such as product control. The whole set of tasks pertains not to the final product but the entire processes and auxiliary activities required to manufacture the product.

In addition, members of SMWTs work with minimum supervision and are more accountable for making work-related decisions and meeting organizational objectives (Hollander & Offermann, 1990). The traditional functions of the managers from planning, organizing, and coordinating are delegated to all members of the group (Goodman et al., 1988) and there are informal leaders (emanating from members of the team) as an alternative for more formally appointed or external leaders (Druskat & Wheeler, 2003; Pearce & Sims, 2000).

According to Manz (1992), self-management can be conceptualized as a continuum of low discretion, at one end, and high discretion at the other end in terms of decision-making. A low degree of self-management indicates that the work team, for instance, can unrestrictedly plan and schedule their work, but delimited on other decisions beyond this one. On the other hand, a high degree of self-management implies that the team members have greater decision-making responsibility. For example, SMWTs have freedom over tasks such as making decisions about work methods, work assignments, and scheduling of activities.

SMWT's potential to become a positive force for management success of most organizations can be

attributed to the advantages it confers in enabling the conditions for producing efficient and integrated units of performance. Invoking the concept of SMWTs as loosely coupled systems can explain why organizations can potentially benefit from overhauling their hierarchical work teams to accommodate SMWTs.

Loosely Coupled Systems

One of the contemporary theories in psychology that can explain team performance differences in SMWTs and hierarchical work teams is the framework of team interdependence by Hollenbeck and Spitzmuller (2012). In terms of decision-making structure, "tightly coupled" members of a team are constrained by the decisions and actions of others in the group, but those "uncoupled" team members are making decisions of their own that there is no team at all. The lack of interdependence, therefore, on the dimension of decision-making violates the definition of teams, and various teams can be differentiated in regards to their degree or level of interdependence (low, medium, or high). However, an organization can no longer operate successfully utilizing uncoupled systems, and there is already a strong need to overhaul tightly coupled systems (i.e., hierarchical work teams). Loosely coupled systems (i.e., SMWTs), as the midpoint between tight and uncoupled systems, is characterized by members that are given the autonomy in decision-making not afforded in tightly coupled systems, yet requiring a level of coordination with other members of the team.

The concept of loosely coupled teams can be integrated into Hackman and Oldham's (1976) theory of work design. The theory asserts that five job characteristics or attributes (skill variety, task identity, task significance, autonomy, and feedback) positively influence numerous work outcomes. The loose coupling of SMWTs can be revealed in its structural features that promote work that provides the aforementioned job characteristics that are not afforded in tightly coupled hierarchical work teams.

First, skill variety pertains to the extent to which a job requires a worker to perform a broader set of tasks. SMWTs differ with hierarchical work teams because, other than executing the core production jobs, members are also primarily in control of other managerial functions such as planning and coordinating (Hollander & Offermann, 1990; Kirkman & Rosen, 1999). Second, task identity refers to the extent to which a job requires completion of a whole piece of work. SMWTs provide task identity because members are doing a work or service from the beginning to end with visible outcomes—as opposed to doing only a segment of the job typical in hierarchical team structures (Cohen et al., 1996; Goodman et al., 1988). Third, the feeling that the job has an impact on the organization is referred to as task significance. Because SMWTs permit members to initiate various management tasks, they perceive their job to be more substantial in contributing to the overall operation of the organization relative to only ranked authorities controlling important decisions in hierarchical work teams (Goodman et al., 1988; Hollander & Offermann, 1990). Fourth, autonomy refers to the degree to which the job provides the worker discretion as to how tasks are carried out. SMWT members are more empowered than members of hierarchical teams because outcomes of their work must depend largely on their own initiatives rather than relying on instructions from a manager or supervisor (Manz, 1992). Fifth, the worker receives direct and clear information about his performance (feedback). Informal leaders in SMWTs give more prompt and accurate feedback about members' performance concerns because they are part of the daily operations of the team, and they know very well how the work should be executed. In hierarchical teams, ranked leaders may provide less accurate feedback because they are not always present from the actual work being done (Druskat & Wheeler, 2003; Pearce & Sims, 2000).

What distinguishes SMWT from conventional hierarchical teams is the greater control over decision-making as can be ascribed to its loosely coupled configuration. Authority and responsibility as to what jobs to perform and how it will be done are assumed by collaborative team members—rendering the efficiency of hierarchical work teams in question.

Research Intentions

With new organizations constantly developing to become more structurally complex, it calls forth the formidable need for reinvention in the concept of work team design. There is already a new way of looking at teams in the workplace as more autonomous and collaborative as characterized by SMWTs. Yet, some organizations are still resistant to move beyond their traditional work structures. This study attempts to examine the effect of implementing SMWTs on group

productivity, applying the loosely coupled systems of Hollenbeck and Spitzmuller (2012) in an organization that has recently been diffusing SMWTs in their work operations. Specifically, the team performance of SMWTs will be compared to hierarchical work teams. The current study assumes that decision-making is a critical component that influences their performance, and that differences can be understood within the work design model of Hackman and Oldham (1976).

Method

Research Design

A cross-sectional design is used to investigate the impact of a self-managed work team configuration on team performance. Specifically, the team performance of two types of teams—hierarchical and self-managed—were compared. No manipulation was presented to both teams as their structures were established by the company prior to data gathering. Company assessment of team performance was utilized as a measure of performance.

Sample and Procedure

An electronics manufacturing company in Cebu, Philippines, was our research site. A premier electronics manufacturing firm, it has been supplying superior quality electronic components to leading electronic brands in the world. The company had implemented work teams in many of its functions for about years already. Currently, the top management of the manufacturing establishment has been diffusing the work innovation of self-management in a variety of functions from engineers, technicians, staffs, and workers. In the workplace, a few SMWTs have been operating side-by-side with majority teams managed conventionally across manufacturing functions. The company has been piloting the effort of transforming traditional hierarchically-structured production teams to self-managed ones across manufacturing functions with the hope to improve organizational productivity. An administrative employee of the company provided guidance for the study, such as the selection of the sample and for securing the confidential team performance database.

Specifically, process engineers performing the same nature of work identifiably under hierarchical work teams and SMWTs were used in the study. Samples that were included in the analysis are only work teams in which the relevant structural features and characteristics of SMWTs and its comparable traditional hierarchical counterpart match our theoretical operationalization. To aid this research goal, the said work teams were identified based on inclusion criteria of the latitude of design characteristics that were ensured not to be overly restrictive nor narrow and vague. For instance, the company used different labels for SMWTs, and these labeling differences might affect the sampling. Other structural properties of SMWTs were also taken into account, such as the presence of informal leaders per se. Samples that were drawn to be classified as hierarchical work teams are engineers being closely monitored by ranked supervisors that functions in driving the manufacturing operations to meet hourly quota and in resolving various work problems (e.g., employee absences, turnover, and other counterproductive behaviors). These supervisors passed the Management Development Program being initiated by the company. SMWTs are drawn from emerging teams organized in the company that are characterized by high levels of employee involvement in decisions. The members of these teams are responsible for regulating their performance and resolving technical work issues by setting their own productions goals and objectives without being led by a ranked leader or supervisor. However, they have an informally appointed leader who is also part of the daily operations of the team. These teams are highly involved in decisions pertaining to task assignment and methods of performing their functions.

In the cross-sectional study, the final samples were drawn from 42 teams, with process engineers as members under these work teams. Twenty-one teams are hierarchical work teams and 21 are self-managed. The main functions of these process engineers are to sustain productivity and enforce adherence to established production systems and standards. They maintain the good quality of products by identifying and troubleshooting problems encountered in the production line. They also identify strategies that achieve results-oriented efficiency and effectiveness. The sample is comprised of 69% female and 31% male. Average age is 34 (SD = 8.99). The average tenure in the company is 13 years (SD = 9.54). They had been in their current work team in an average of seven years (SD = 5.69).

Measures

Confidential data sources that included their monthly team performance scores were obtained from the company employee dataset. The team performance scores in the company are based on different criteria that are set to measure how teams under the operations department effectively work together to achieve a common goal. The team performance scores obtained were averaged out from January 2015 to June 2016 to get a single score. Team performance for each team is similar across members; members only differ in their scores for individual performance. The measure, therefore, is aggregated at the group level of analysis.

Results

The present study aims to assess the effectiveness of SMWTs over hierarchical work teams in terms of team performance. An independent samples t-test was conducted to determine whether there is a significant difference in team performance between SMWTs and hierarchical work teams. Team performance was greater in SMWTs (M = 96.95, SD = 5.75) than hierarchical work teams (M = 91.77, SD = 6.45). This difference is statistically significant [t (40) = 2.747, p< .01], and represents a large Cohen's effect size value (d = 0.85).

Discussion

The study investigated the effectiveness of SMWTs in enhancing team performance. It was revealed that SMWTs had higher levels of team performance than hierarchical work teams. As proposed by Hollenbeck and Spitzmuller (2012), loosely coupled systems such as SMWTS can facilitate better team performance due to improved decision-making processes. Specifically, teams with hierarchical structure rely on decision-making authorities and are bound to decisions that are not their own. On the other hand, SMWTs are afforded the autonomy of making their own work-related decisions without jeopardizing collective performance. How these team structures affect team performance can be examined in terms of five job characteristics postulated by the work design model of Hackman and Oldham (1976).

First, in skill variety, members of SMWT assume both technical and managerial aspects of their jobs simultaneously. The team members of self-managed process engineers in the study are not only responsible for technical tasks (i.e., repairing equipment, inspection of output defects, testing finished-product) but are also delegated administrative duties and regulatory tasks (i.e., calculating production, labor, and material costs; developing and implementing new production systems). This type of work team setting that requires members to perform a range of activities allows them to broaden their organizational skills and talents that are not afforded in hierarchical work teams with differentiated team roles. Further, because the engineers are equipped with both technical and administrative skills, they are capable of deciding what works best for their team.

Second, in task identity, members of SMWTs complete a whole and identifiable piece of work, involving all the processes required to manufacture a product. In the manufacturing company sampled, process engineers in SMWTs perform a set of interdependent tasks to assemble an electronic product: from main engineering processes (i.e., product design and assembly) to supplementary processes (i.e., quality control, monitoring quota requirement). On the other hand, process engineers in hierarchical work teams perform only independent support operations. Self-managed team members have a comprehensive understanding of their work, providing them with information that facilitates production-related decisions. They are more empowered and feel more personal ownership for the success of their work—driving internal work motivation among team members and subsequently accelerating team performance.

Third, because SMWT members can initiate important management and administrative tasks, they would perceive their job as more substantial in delivering legitimate organizational objectives. This may result in the positive state of experienced meaningfulness of the work—changing the way teams respond to their work and sustaining high-quality team performance. In the manufacturing company sampled, hierarchically-led process engineers only rely on instructions from their supervisors to solve engineering problems arising from operations (e.g., shortage of raw materials, stoppage of product assembly). This disproportionate distribution of control among team members may lead to a work perceived as not providing task significance. However, in a SMWT, control is dispersed where members are more involved in important management and administrative tasks. This increases the value they put on their work and might encourage these

engineers to arrive at choices that are beneficial to their organization.

Fourth, the self-managed team structure permits its members to make autonomous decisions that cannot be achieved under the bureaucratic, hierarchical teams. The process engineers in SMWTs, for instance, can freely come up with immediate solutions and strategic decisions to issues encountered in the various process lines with minimum direct supervision from a manager (i.e., providing directions to operators on key parameters, assembly instructions, process troubleshooting, operating plans). However, these process engineers are delimited on charting their own work schedules and production quota. In hierarchical workgroups, it is the manager who decides what to do, how work is done, and when. The performance of the team might be affected by the restrictive and excessive control of this type of team structure. The increased degree of autonomy and discretion in team members' day-to-day decision-making in the workplace is then expected to have a positive consequence on enhancing team performance.

Fifth, on the job dimension of feedback, a member of a team obtaining direct and clear information about the effectiveness of his or her performance is imperative. Higher ranked process engineers in the sampled hierarchical work teams are not always immersed from the daily manufacturing operations of the team; thus, they may provide less accurate performance feedbacks. To illustrate, these ranked authorities lack the knowledge on much of the technical aspects of engineering processes (i.e., product design, assembly, and tooling) but have more influence on administrative matters like labor relations. In contrast, the process engineers in SMWTs receive more clear performance feedback from informally designated leaders who are knowledgeable not only on administrative duties but also on technical matters related to the daily operations of the team. Moreover, feedback flows horizontally in more autonomous teams which leads to multiple and more open exchanges between members of the team without being constrained by the drawbacks of vertical, bottom-up communication inherent in hierarchical work teams (information passes through many levels).

Implications

Those who work in complex work environments, with a job characterized by high job interdependence, have the most to gain from the utilization of SMWTs. As the nature of the company sampled in the study is manufacturing and utilizes complex assembly lines, it might be implicated that the concerted control inherent in SMWTs relative to the bureaucratic control in traditional teams is the vital factor to produce high-performing teams. Therefore, this supports one of the theories of Anderson and Brown (2010) that performance-related outcomes of flatter SMWT versus its taller hierarchical counterpart only support the contingency framework and not the functionalist perspective. That is, the effectiveness of hierarchical teams (as purported by the functionalist perspective) is put into question because the utilization of hierarchy largely depends on a host of factors such as the kinds of tasks the team is working. The use of hierarchical teams might not serve well in work settings like manufacturing because of the entailed complexity of carrying out an interdependent set of tasks, per se, in an assembly line. A group of well-motivated members of a team must collaboratively work in solving various problems and technicalities in the workplace—each team member bringing competence to the table to make informed decisions.

Conclusion

The study was able to show that SMWTs outperform traditional hierarchical teams. This is due to the capacity of members of SMWTs to engage in autonomous decision making and be more invested in their tasks. The diffusion of SMWTs in organizations is highly encouraged. Hopefully, many firms across the globe would undertake this organizational transformation and come to recognize the substantive benefits of SMWTs in producing high-performing teams.

With an organization utilizing SMWTs that possess all highly-needed task attributes plus the authority in making decisions, it has a long way to go in successfully thriving in a globally competitive business environment. Yet, in blazing new trails to this promising work team innovation, an organization must also consider that it takes sustained time, effort, and resources to implement these types of teams and reap their rewards.

Limitations and Recommendations

First, the results of the study must be cautiously taken because it does not provide answers about

the causal predictions about the variables under investigation. Conclusions reached by this study do not absolutely suggest that organizational members under self-managed team design are more effective than those under hierarchical team. Other variables other than the team structure might be concomitant variables such as team size, technology, type of industry, and other organizational factors in influencing team performance. Hence, a study that captures these complexities in the work environment can be done to further our understanding of the effectiveness of SMWTs. Second, the results of the study cannot be generalized across different types of jobs because we only sampled process engineers in a manufacturing company. Comparison groups could have expanded the breadth of the findings of the study. Caution should be observed in generalizing the effectiveness of SMWTs in work environments with a different set of configurations from manufacturing settings. As fruitful avenues for research, the effectiveness of SMWTs should also be examined in a service organization and not in a product-oriented organization because it might produce a different pattern of results. Third, the present study did not examine the specific mediators underlying the effectiveness of SMWTs in enhancing team performance. Refinement of the potential variables that might operate in the relationship between team structure and team performance must be taken a step further. Fourth, although the study views decision-making to be the critical dimension that influences team performance, the theoretical lens used in the study does not cover the steps or approaches of team decision-making (e.g., rational, political, administrative, etc.). This is a noteworthy theoretical direction for future researches because it permits a nuanced explanation of the team performance differences between SMWTs and hierarchical teams in terms of decision-making mechanisms. Finally, the samples used in the study (SMWTs that are naturally occurring) might have not robustly captured the theoretical definition of SMWTs, although, an inclusion criterion was part of the sampling methodology to address this limitation. This is because SMWTs are structured differently in various organizations. Future studies can look into the nuances among SMWTs and look into how the differences affect team performance.

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