Teamwork productivity & effectiveness in an organization base on rewards, leadership, training, goals, wage, size, motivation, measurement and information technology

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Abstract

Activities in an organization require a lot of interaction and communication between the people involved. Additionally, good activity often relies upon the ability of cross functional team to create a shared understanding of the task, the process and the respective roles of its members. To effectively operate with teams, organization must know to make, use, and keep them and their members. This paper provide a survey of research on teamwork productivity and effectiveness base on rewards, leadership, training, goals, wage, size, motivation, measurement and information technology.

Keywords: Teamwork, Team Productivity, Team Effectiveness, Team Performance, Cooperative in Team.

1. Introduction

In today's world of work, fundamental transformation in complex structures are taking place. Organizations face complex and dynamic environments that have been attributed to increases in the globalization and competitiveness of the global economy (Scott – Tiessen, 1990) As most everybody knows, change is constant within teamwork productivity and effectiveness. The emergence of new technologies, coupled with escalating demands from business, has brought about both instability as well as new challenge.

In turn, teamwork must now look for new ways to adapt quickly, operate more efficiently and better prepare themselves for future. Not surprisingly, many organizations believe redesigning the structure of their organization is the solution, on the other hand, as well designed and planned, organization can have dramatic benefits for the enterprise, including increased profitability, greater overall efficiency and better alignment of teamwork to business needs. In an effort to assist those organizations considering undertaking this design effort, this paper give a survey of the research.
studies on teamwork productivity and effectiveness. The purpose of this paper is to: (i) review literature, (ii) classify the literature based on the teamwork productivity

**2-Classification scheme for teamwork productivity and effectiveness in an organization**

Table 1 illustrates a classification scheme for the literature on the factors, impact on teamwork productivity and effectiveness.

In this survey we have considered 10 major factors

### 3 - Teamwork productivity and effectiveness

Extensive work has been done on applying teamwork productivity and effectiveness in an organization. Using the classification scheme developed in section 2, research findings in an organization will be reviewed.

#### 3.1 Reward systems

Team reward systems are the newest and fastest growing reward strategies because of the huge increase in organization moving to team-based environment. (De Matteo, Eby, & Sundstrom, 1998) As organization move into team-based systems for management and eventually into team reward systems, performance become the “product of how well we leverage skills into products or services”. (Thornburg, 1992)

There are many possible reasons for implementing a team reward system, the most fundamental and basic reason being that the organization structure is team-based management.

As organization explore the option and use of team-based management, it will become increasingly harder to separate and distinguish the contribution and individuals. There becomes a great interdependency between jobs and tasks because of the way work is no organized (Nickel & O’Neal, 1990)

An important element to consider when implement team rewards systems is size of the reward.

Reward size has been shown to correlate with pay satisfaction and motivation. If the reward size is rather large, then it is in the group’s best interest to work together with as much cooperation as possible in order to achieve this rewards (Wagner, Pubin & Callhan, 1988).

Lawler (1981) believes that the amount of rewards that the organization is able to allocate to the employees is a critical factor in determining the motivation of the employee. Therefore, in the initial determination of size and frequency of the allocation of rewards, leadership should carefully research and consider the effect that the size and frequency of their rewards will have on the employee’s motivation.

Schuster & Zingheim (1992) provide different options to consider as an organization determines how frequently to give rewards.

Rewards can be given at the same time that performance is measured. Or, rewards can be given by the use of a reserve fund.

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Table 1: Classification schemes for teamwork productivity and effectiveness.
If the reserve fund is positive at the end of the year, the employee receive their share of balance. If the reserve fund is negative at the end of the year, generally the organization takes the loss. A third option in deciding the frequency of payout is paying out rewards over time after the end of particular performance period De Matteo, Eby, & Sundstrom (1998) introduced two different types of reward allocation procedures. These are equity norms and equality norms. Equity norms mean disbursing the team's reward in proportion to the contribution of the individual team members. Equality norms mean dividing the team's reward equally despite the varying degrees of contribution among the team.

Hitchcock and Willard (1995) believe that the wealth should be shared equitably among team members as not to turn rewards into a contest.

As team reward systems grow and increase in popularity, many organizations will move teams because of their success. However, some organization using individual reward systems may feel that they are successful for them and see no reason to change, even if they decide to move to a team-based management approach. Individual rewards are typically rewards are on pay-for-performance basis. (Frederick Hills 1979)

Barry Gerhart of cornel's center for Advanced Human Resource Studies (Thornburg, 1992) believes that the variance in individual performance is too substantial to be successful in a team reward system. He believes that individuals should be recognized for the specific work. Hitchcock and Willard (1995) say that individual rewards should never receive more attention than the team rewards.

In using team reward systems, one important variable to consider is how the effectiveness of these rewards can be measured.

Therefore, it is very important that these clear, concise measure are in place (De Matteo, Eby, & Sundstrom, 1998)

Sara Allred (2004) introduces an actual model named “stage model for the implementation on team reward systems questionnaire” that accompanies the questionnaire is a very simple guideline that consultant can use as he or she gains answers to his or her questions.

Coudron (1994) writes that people learn to behave in certain ways based on the rewards they receive.

Therefore, in order to convey to people that want them to produce more in teams, reinforcement of behaviors that lead to and sustain team performance is necessary.

Honeywell, Dickinson, and Poling (1997) show that under group incentive system, top performers decrease their performance when their earnings are reduced by poor performers. While poor performers continue to perform below average because their benefit from the performance of other members.

Gross (1997) recommends three phases to implementation of a reward system. The first phase is labeled feasibility, the second-phase is the design phase and the third phase is the actual implementation of the program.

Pasacarella (1997) states that non-monetary rewards such as plaques, the trophies, vacation trips, and small gifts can be the best incentive for team members.

He emphasizes, however, that the most important part of this kind of recognition is that management must give it with sincerity.

Bartol and Hagmann (1992) suggest three methods of distributing rewards.

They are equal payments to all members of team, differential payments to team members based on their contribution to team's performance, and differential payments determined by a ratio of each group member's base pay to the total base pay of the group.

Saunier and Hawk (1994) define four teams through the nature of team membership and the length of time that a team needs to be in place.

Different reward systems are used for these different teams.

Joseph Farrell and Suzanne scotchmer (1998) show that when agents are heterogeneous, team output is shared equally and there are economies of scale from teamwork, team will be too small, since more able workers will choose not to partner less able workers.

B. Curtis Eaton and Aidan Hollis (2003) developed a very simple model and evaluated how teams should be rewarded given some specific distributions of opportunities.
3-2 Leadership
Eden (1990) studied about the effects on group performance of leaders' expectations of group performance. His research indicates that such expectancy effects occur in the comparison groups. Jacobs & Singell (1993) offer a different perspective on how individual leaders can affect team performance. They examined the effects of managers (after controlling for other variables) on the won-lost record of professional baseball to identify superior managers. Superior managers were effective through at least two possible processes: by exercising excellent tactical skills or by improving the individual performance of team members. George and Bettenhausen (1990) studied groups of sales associates reporting to a store manager and found that the favorability of leaders' moods was inversely related to employee turnover. Halebian & Finelstein found that firms' performance is worse in turbulent environments when the chief executive officers (CEO) is dominant and better when top-management team size is greater.

3-3 Training and Learning
David Kolb, a developmental psychologist, synthesized and expanded the work of John Dewey, Kurt Lewin, and Jean Piaget to develop an adult learning cycle. This cyclical, experiential process has been broken into four stages:

1) Concrete experiences,
2) Observe and reflect on the experience from many perspectives,
3) Create concepts to integrate these observations into logically sound theories,
4) Testing implications of concepts.

Senge (1990) says that team learning is vital because teams, not individuals, are the fundamental learning units in modern organizations. Thus, the collective IQ of the team is sometimes more than any individual member's IQ. Jay Payne & Anderson (2004) found that team training is most effective when several important elements are met. The first is that business ought to develop learning organizations to facilitate and grow teams. The obvious advantage here is that when teams are healthy and developing, so is the organization. Teams need distinct training to work cohesively.

3-4 Goals
Katzenbach and Smith (1994) define an individual's goal as an ideal. It is a desired place toward which people are working, a state of affairs that is valued. A team's goal is a future state of affairs desired by enough members of a team to motivate the team to work toward its achievement. Horrington (1994), goals do more than just give a team a sense of direction. Fisher (1993) gives several considerations during individual team goal establishment. If they are incorporated into the goal, an effective format for the team's plan of action will already be developed and in place.

Both Johnson and Johnson (1994) and Zander (1974) suggest that a team is more important than the individual team member's goals. However, they also state that team's success might be more important than the success of the company as a whole. Juran and Gryna (1988, 1993) developed a list of criteria to be met by those who establish goals. The top of the list is that goals must be measurable.

Walton (1990) describes a system typical of many companies. They use a form of policy deployment known as management by objective—a performance rating system for managers in which a person sets goals in consultation with his manager and is rewarded a bonus based on the extent these goals or fulfilled. Greg Hendrix (2004) says: Goal establishment is critical for the success of the team. Without it, the team is almost assured to perform at less than their potential.

Implied goals, or goals handed down and accepted without consideration by the team, will also produce less than desired results. An environment that encourages teams to take chances, set high goals, will develop successful teams. Clear goals are one of the vital few. Brawley et al (1992): Goals for group performance can take many forms: quantity, speed, accuracy, service to others, and so on.
Weingart (1992) examined in a laboratory experiment member effort and planning, two possible mediators of goal effects, and found evidence indicating that member effort mediated the impact of goal difficulty on performance. Weldon & Weingart (1993), Lee (1989) Locke & Latham (1990) found other possible mediators of affects of group goals include the degree of cooperation and communication they simulate in groups. Mitehell & Silver (1990) found that the presence of both individual and group goals resulted in performance no greater that attained in the presence of group goals alone. Lee (1989) show that team goal-setting mediated the relationship between team-member self-efficacy and winning percentage among several female field hockey teams.

3-5 Intra group wage inequality
Akerlof & Yellen (1990) argue that workers proportionately withdraw effort as their actual wage falls short of their fair wage. They posit that a “fair wage” is a function of the wage received by other members, of the same firm, so that workers in low demand will perceive a lower fair wage than workers in high demand. Levine (1991) and Ramaswamy and Rowthorn (1991) more directly tie intra team inequality to it’s effect on team performance, but with different implications. They formally relax the multicative assumption and analyze a production function in which effort is not necessarily labor – augmenting. They show that this reduces the elasticity of effort with respect to the wage, which is most relevant for production process characterized by high complementary between workers. Levine (1991) argues that a lower-variance wage distribution increase worker cohesiveness and raised firm output. Conversely, greater wage inequality hurts team cohesiveness and lowers firm output. Depken (2000) estimated the effect of wage inequality on team performance. He finds a negative and significant effect of wage disparity on team performance.

3-6 Size of team
Kandel and Lazear (1992) claim that in a simple model of an equitable partnership, Nash equilibrium effort levels fall with the number of partners the 1/N problem. Jones and Pliskin (1997) find that larger firm are more likely to offer employee share ownership to all non-managerial employees and profit sharing to production workers, contradicting the standard intuition. Knez and Simester (2001) : A flight cannot depart until the entire ramp and gate activities have been performed, so that poor performance by one employee can negate good performance by the rest of the group. Che and Yoo (2002) present a theoretical model of group incentive in a repeated game that formalizes the argument made in Weitzman and Kruse (1990) the authors show that the implicit incentives generated by perfect (within group) monitoring and repeated interaction allow the free rider problem to be solved. There exists a parallel discussion of group size and free riding in the charitable giving literature. Andreoni (1988) shows that the standard model of charitable giving, voluntary contributions to a public good, imply a free rider problem. Issac and Walker (1988) shows that the free rider problem does increase with group size, but only if the value of the marginal contribution is allowed to decrease with group size.

3-7 Motivation and group performance
Shamir (1990) analyzed three different forms of collectivistic work motivation: calculation (rewards or sanctions are anticipated to follow from group performance), identification (one’s self-concept is influenced by membership in a group), and internalization (acceptance of group beliefs and norms as a basis for motivated behaviour). Guzzo et al (1993) maintained an interest in motivation at the group level of analysis, not at the individual level of analysis.

Earley (1994) provided empirical evidence on the role of individualism – collectivism (a culture – based individual difference) in shaping the impact of motivational (self efficacy) training for individuals. Sheppard (1993) offered an interpretation of individual task-performance motivation in groups that drew heavily on expectancy theory.
3-8 Models of effectiveness

Effectiveness can be defined according to Campion, Medsker & Higgs (1993) in terms of productivity, employee and customer satisfaction and manager judgements. According to that model, job design, interdependence, composition, context and process are the themes that contribute to the above effectiveness criteria. Hackman’s definition (1990) of effectiveness is defined in a three-dimensional definition: the group’s output meeting quality standards, the group’s ability to work interdependently in the future, and the growth and well-being of team members. Guzzo’s model (1986) differs considerably from the two aforementioned model. He does, however, define measurable group-produced outputs. His model shows the three variables he considers essential for effectiveness: task interdependence, outcome interdependence, and potency. These three variables, through task-related interaction, affect the group’s task effectiveness and be influenced by either group members or people outside the group. The model by Sundstrom, De Meuse, and Futrell (1990) represents a comprehensive synthesis of the research on the effectiveness of workteams. The authors have called it the ecological framework for analyzing workteam effectiveness. In this model, effectiveness is defined as a combined, measure of team performance and team viability. The self-managing team effectiveness model developed by Susan Cohen identifies specific components critical to success (Cohen, 1994). The major components of the model include employee involvement, encouraging supervisor behaviour, group task design, group characteristics, team performance, member attitudes with quality of worklife, and withdrawal behaviours. William G. Dyer (1994)’s model provide the framework for the research that follows. Dyer recognizes the role and impact of the organization in establishing effective teams.

3-9 Team Measurement

Mohram et al. (1995) recognize the establishment of goals and objective, planning of work, and the identification of skills, tools, and resources needed by performers as products of defining and measuring performance. Rummel and Brache (1995) point out some managerial benefits for using measures. First, the measures that are applied will communicate performance expectations to subordinate in the organization. In addition, measure are the basis for management to know what is going on in their organization and to help identify performance gaps that should be analyzed and eliminated. Jack Zigon (1995) recognizes some of the problems that arise in team measurement. First, it is not always obvious what should be measured. Even if it is clear what to measure, it is not always clear how the measurement should be done. What seems important to assess may, in many cases, not be easily transferable into numbers. Daniels (1989) suggests that rating systems are preferable when performance is measured by judgement. He states that both results and behaviour should be pinpointed and measured, but results should always be measured first. Zigon (1995) suggests a comprehensive, seven-step model for performance standards for teams and emphasizes that good measures are those that can be verified by someone else and that are observable. Gilbert (1989) divides performance measurement into four basic categories: quality, quantity, timeliness, and cost.

Yeatts and Hyten make the point that the business knowledge of team members should be taken into account in deciding the degree to which financial measures should be used. Models promoting operational measures as well as measures of customer satisfaction are the performance pyramid (Lynch & Cross, 1991) and the Balanced Scorecard (Kaplan & Norton, 1992).

3-10 IT

King and Sethi (1999) suggest that IT is fundamental to effective global operations in two primary ways: providing a coordination mechanism for geographically dispersed activities, and facilitating the reshaping of the separate organizations into global cooperative.
Carmel (2001) summarizes five major challenges that global software development teams face:
1) Adjusting to geographical dispersion of IT personnel and users.
2) Loss of communication richness with less face-to-face interaction.
3) Coordination breakdown in project management.
4) Loss of "teammess".
5) Dealing with cultural differences among globally distributed staff and business organizations.

Pare and Dude (2000) propose a framework for studying virtual and hoc teams (such as development project teams), addressing factors such as project context, ICT use, team dynamics, and project management strategies.

Ramesh and Dennis (2002) propose an object-oriented team model, conceptually following object-oriented software design principles, that uses loose coupling of IT design tasks among dispersed group of IT personnel to reduce communication and coordination loads.

Sudstrom, De Meuse, and Futrell's (1990) ecological framework for analyzing workteam effectiveness focuses on the interplay of features of the embedding context of groups.

Maznevski and Chudob (2000) found that interactions in effective global decision-making teams centered around incidents of intense interactions, with lower-volumes of interactions through less-rich IT media in-between times, and that team activities were organized around repeating patterns of such incidents.

Elizabeth J. Davidson & Albert S. M. Tay (2003) suggest that the study of global IT support teams provides a rich setting to investigate issues related to globalization of business enterprises, the role of information technologies in globalization, the factors that influence effectiveness, and thus competitiveness of organizations dependent on global teamwork.

Deborah Jude-York suggest: high performing teams who have mastered technology enhancements and developed the corresponding human/social systems have made significant improvements in their productivity.

4 Conclusion
This paper has discussed an extensive literature review and survey of research studies on teamwork productivity and effectiveness.

Through the course of this study, it has been observed that (1) the factors that influence the effectiveness of teams at work in organizations. (2) It provides some of the strongest support for the value of teams to organizational effectiveness.

The research compiled in this review came from many papers. Our motivation was to identify how team works can be used effectively in an organization.

Ideally, this foundation will assist researchers currently engaged in teamwork productivity and effectiveness and may lead to the identification and stimulation of areas requiring additional research.

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