



THE BUSINESS REVIEW, CAMBRIDGE

VOLUME 2 * NUMBER 2 * OCTOBER 2004

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The Impact of Motivation and Communication on Productivity

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ABSTRACT

Despite significant investment in capital improvements and training, a manufacturing plant suffered from chronically low productivity. The author conducted a survey to measure employee satisfaction and to determine the correlation between employee satisfaction and productivity. The study found a correlation between average job satisfaction, low motivation and the resulting low productivity. A direct correlation was also found between low productivity and poor communication between management, supervisors and employees. The article offers recommendations to improve productivity by increasing employee involvement and communication.

INTRODUCTION

In the manufacturing industry, productivity is correlated with revenues and impacts the company's bottom line. Although an employee can increase productivity with technologically advanced equipment it does not necessarily mean that overall the company is more productive. Robbins (2001, p.20) suggests an organization is productive if it achieves its goal and does so by transferring inputs to outputs at the lowest cost. As such, productivity implies a concern for both effectiveness and efficiency. At a Canadian copper rod manufacturing company, productivity is defined by the ratio of productive hours over available hours of production. At 74%, the company's performance is below the industry's average of 80% and has not improved despite important investments in new state-of-the-art machinery and technical training. The objective is to study the causes of low productivity from an organizational behavior perspective.

The first section of this article describes the company and the problem. Next, the hypotheses are introduced based on variables that are critical for this problem and supported by a literature review. The methodology of the field work and data collection is explained, and the results are described and analyzed, with respect to the initial hypotheses. The final section presents suggestions to address the problem of low productivity, and proposes a recommended approach to resolve the situation.

THE PROBLEM

The manufacturing plant (Canada) benefited from significant investments from 1997 to 2000. Over \$15M was invested during this period to expand the capacity of the facility, upgrade tooling and improve the quality of its product. This was preceded by a significant training investment to increase the expertise of the personnel. The mill operations were successful in increasing overall production, from a nominal capacity of 35 tons per hour to current nominal capacity of 48 tons per hour, resulting in an increased annual production capacity from 163 000 tons to 250 000 tons.

Despite these significant investments, the plant has not improved its operational efficiency, defined as the ratio of good production to total potential production. Before the investments were made, operational [production] efficiency was 74.2%. This remained stable over the past years, and is 73.9% to the year ending 2003 (Figure 1). Comparable U.S. mills are known to consistently maintain over 80% efficiency. Manufacturing plants in France operates a comparable rod mill which typically achieves over 80% efficiency yearly (Table 1). The equipment and tools in the Canadian facility are comparable to others and its technical personnel appear as competent. However, structural differences (work shift and operating pattern) are estimated to account for 2% to 3% improvement in the French mill. Therefore, this leaves a difference of 4 to 5% due to "people" and organizational differences. Although this seems a modest difference, a 5% improvement in efficiency translates to a marginal profit increase of \$1.5M. A closer look at the manufacturing plant working environment (demographics) will help to identify the variables that are critical in examining and addressing this problem.

The new minimum education level at manufacturing plant is high school diploma, and many of the current union employees have less education. All supervisors are relatively young and have a technical degree from community colleges. Managers usually have undergraduate degrees. Executive management consists of a General Manager and Plant Manager while middle management consists of 6 Directors. There are two distinct groups of

employees at the company: An older group with seniority and a second group consisting of lower seniority and younger employees (Figure 2). After exploring the work environment and some of the problem's root causes, the following critical variables that influence employee job satisfaction and productivity have been selected leading to the following four hypotheses.

THE HYPOTHESES

Based on a review of the classic OB model presented by Robbins (2001), characteristics at the individual, group and organizational levels were targeted as antecedents to the below average productivity at the plant as compared to the industry standard. This led to the following four hypotheses:

Hypothesis 1 (H1): Low productivity is a direct result of low job satisfaction and low motivation.

Hypothesis 2 (H2): Low productivity is a direct result of poor communication between management, supervisory and employee levels and its vertically integrated management.

Hypothesis 3 (H3): Low productivity is a direct result of poor corporate citizenship and low attachment to the organization.

Hypothesis 4 (H4): Low productivity is a direct result of undefined new corporate culture and isolation of the Canadian plant from the European head office.

THE METHODOLOGY

The tools used in the field study consisted of a survey and interviews conducted within the company. The survey used for this study is also used by Bell Canada and developed by Clear Picture Corp (Berwarld, 2002), a world leader in employee surveys to measure employee satisfaction (Employee Value Index or EVI). The survey was adjusted by removing two Bell specific questions, thus maintaining the required validity and reliability of the survey. The survey consists of 63 questions grouped under 13 categories, as listed below in relation to the hypotheses, H1 to H4, defined previously.

oConditions for efficiency and motivation (EM)	→ H1
oAutonomy (AU)	→ H1
oProfessional challenges (PC)	→ H1
oHuman resource management (HRM)	→ H2
oPerformance and compensation management (SCM)	→ H1
oHuman resource development (HRD)	→ H1
oCustomer service focus (CS)	→ H4
oCollaboration and Teamwork (TW)	→ H2
oResources to perform work (RPW)	→ H1
oInformation sharing (IS)	→ H2
oConfidence in the organization's strategy (COS)	→ H4
oConfidence in the organization's leadership (COL)	→ H4
oEmployee Satisfaction (Value Index) (EVI)	→ H1

Each question in the survey had five responses from very positive to very negative.

The last category (EVI) measures the overall job satisfaction. It is computed as the average percentage of interviewed employees who responded favorably to the last five questions, that is, either in "total agreement" with the statement, or "in agreement" with the statement. For each category, the positive answers are correlated by a "Pearson product moment" with the EVI. The resulting Priority Matrix organizes the results of the survey into a "scatter plot" for easy interpretation. The higher the answers for a category are on the Y-axis, the more the category has an impact on the overall EVI. The closer to zero a category is located on the X-axis, the more an improvement is required. (See Appendix for Priority Matrix).

The personnel surveyed consisted of 19 of the 26 employees from the production crew. For management, 16 out of 21 employees including supervisors (foremen and assistant-supervisors), managers responsible for production and maintenance and the support engineers were surveyed. The B and C crews were representative of the bi-modal age and education profile of the plant (Figure 2). Comments volunteered during the survey were recorded and one-on-one interviews were conducted with the Director General, the Director of Human Resources, and the Director of Production. The next section provides the key results of the survey and the interviews within the data analysis, as it pertains to each hypothesis.

❖ Analysis of the data with respect to (H1)

An analysis of the employee's results associated with the key theories explaining job satisfaction and job motivation supports Hypothesis 1. The perceived lack of feedback and empowerment, and the absence of skill

variety affect key elements of the Motivating Potential Score (MPS), as proposed by Hackman and Oldham in their Job Characteristic Model (Fried and Ferris, 1986)). The perceived absence of a link between individual performance and its associated rewards, as described in the Expectancy Theory proposed by Vroom (1964) and the potential absence of potential for advancement, growth, recognition and achievement, leading to extreme job satisfaction, as suggested by Herzberg (1959) in his Two-Factor theory are supportive of Hypothesis 1, at the plant employee level. However, employees showed high EVI and valued most highly the SCM. Based on the comments received from employees, it could be inferred that the employees had high job satisfaction not because of the job per se, but because the condensed work-week and good salary allowed them more time and money to do "other things" than work. Productivity could be improved by increasing the job satisfaction elements that are truly job related.

In contrast, this was not the case at the supervisory and management level, since most of the key dimensions associated with Hypothesis 1 were positively responded to by the latter employees. The management employees valued the work itself because of the autonomy and challenge the job offered, yet they felt under-compensated for their efforts. Therefore, H1 is partially supported at management level.

❖ **Analysis of the data with respect to (H2)**

Overall, employees neither agree nor disagree with the statement that their supervisors give them adequate information on the company's goals and objectives. The strong negative score for the employees in this category, and the negative or neutral score observed on communication-related questions in other categories support Hypothesis 2, when we correlate poor communication and team performance as observed by Pagell and Lepine (1999); McCroskey and Richmond (2000) and by Kivimaki, Lansisalmi, Elovainio, Heikkila, Lindstrom, Harisalo, Sipila and Puolimatka, (2000). Comments gathered from the human resources director and the General Director, are supported by Robbins' with regard to distortion of information from one level of hierarchy to the other within organizations.

❖ **Analysis of the data with respect to (H3)**

From the data, it is clear that employee motivation to perform beyond the job description is on the decline. Management responsible for human resources downplays the importance of employee participation in the company's performance. This is in direct contrast to accepted theories, which indicate that corporate citizenship should be fostered and nourished, as companies which have committed employees perform better than those that do not (Appelbaum et al, 2003)

According to Bedeian, Ferris and Kacmar (1992) extensive research shows a strong and positive link between seniority (time on a particular job) and productivity. The high turnover of young supervisors should be a matter of concern to management. Clearly, it is an indication of lack of attachment to the organization, and contrasts sharply with the director of human resources' perception that the workers are satisfied and happy to work at the plant.

❖ **Analysis of the data with respect to (H4)**

(COL) Confidence in the Organization's Leadership

Management responded positively to this dimension (2.69). However, the last question in the survey that related to the collaborative spirit between employees and the company was negative (3.18). Employees expressed that they do not perceive that upper management is open with them (Q56), and that there is a collaborative spirit between themselves and the company, even answering slightly negatively to the statement: "do you think that overall the company respects its employees".

Comments gathered from plant employees indicate a "wait and see" attitude toward the new general director. There is hope that he will bring in some necessary changes with regards to leadership and communication between management and workers. "Let's see what the new manager will do within the next six months..." As it stands now, there is a lack of trust between the hierarchical levels in the company. "The morale of employees has been zapped for the last three years...they feel tricked." Plant employees perceive a lack of planning on behalf of management; many changes do not appear thought out, but rather seem improvised. "They are not organized...everybody is tossing the ball to each other; nobody is responsible".

(COS) Confidence in the Organization's Strategy

Both employees and managers agree that the company actively competes in the marketplace and will keep being a successful venture by focusing on quality as a prime objective. They do not perceive that the company is

proactive by anticipating problems and designing solutions. Similarly, both employees and management perceive the Company is customer focused, with employees scoring higher than management on this dimension. The quantitative research does not seem to provide sufficient data to support Hypothesis 4.

Comments from plant employees, supervisors and even the director of production support the survey results with respect to confidence in anticipating and solving operational problems. The culture reflects the old adage – ‘if it isn’t broken, don’t fix it’. There is no emphasis on preventive maintenance, and there is a general feeling that the Canadian plant is lagging as compared to its sister plant in France, with respect to investment. The general sentiment is that this strategy affects productivity and may impact the company’s ability to compete. The General Director does not feel that lack of investment should be the main focus, with respect to improving productivity. He indicated that once other matters are resolved in the plant, if capital investment is required, it will follow.

(CS) Customer Service

Both employees and management have a very clear understanding that their performance is associated with their capacity to serve their customers properly. They believe that they achieve this goal. In the view of the new general director, “the priority should be customer satisfaction: everyone should understand this and work towards the same goal.” In his opinion, productivity is achieved when all employees share a common objective, and are empowered to work towards it. This is what he wants the company’s culture to reflect. He recognizes that there is much work to be done.

CONCLUSIONS AND RECOMMENDATIONS

The study found a correlation between average job satisfaction, low motivation and resulting low productivity. Employees enjoy a condensed workweek and good salary, but did not value the “work related” aspects as much. A direct correlation was also found between low productivity and poor communication between management, supervisors, and employees. Evidence was found for declining corporate citizenship from plant employees and low attachment to the organization for the supervisors, since this effects productivity. No evidence was found that the acquisition by a French corporation and the isolation from the head office have an impact on productivity. However, it was found that the existing secretive, reactionary corporate culture does affect negatively productivity at the plant.

“Employee involvement is a participative process that uses the entire capacity of the employees and is designed to encourage increased commitment to the organization’s success... by involving workers in those decisions that affect them and by increasing their autonomy and control over their work lives, employees will become more motivated, more committed to the organization, more productive, and more satisfied with their jobs”. (Ford and Fottler, 1995) In addition, as proposed by Locke and Latham (1990) employees derive motivation from striving to achieve an important goal; this increased motivation translates into higher levels of productivity. For these reasons, the following plan of action is recommended upon which the alternative solutions will be based. The areas that should be covered by a specific action plan are:

- ✓ at the employee level, develop a plan of action that will implement an empowerment strategy, and a professional performance evaluation program that should be associated with a simple bonus program;
- ✓ at all levels - employees, supervisors and management - implement communication processes that will ensure the direct flow of information and promote an environment that will be conducive to increased productivity;
- ✓ at the organizational level, apply activities that will nourish the existing, but potentially diminishing, corporate citizenship and stem supervisor turnover;
- ✓ at the organizational level, take the steps to ensure that the company’s new culture, based on customer satisfaction, is understood and implemented, and assume a proactive approach in maintenance of the plant’s assets, both capital and human.

A major solution to consider is that the company must initiate/execute the process of implementing a quality management system with a view to an ISO certification. This is an excellent opportunity to obtain the direct participation of all employees – at all levels – in the process and to transform it into a unifying and empowering project. The quality approach answers as well, to the new culture focused on customer satisfaction. The company has mandated an external consultant to implement the system.

It is recommended that a consultant’s involvement be restricted to the technical aspect of the process, and to achieve the certification by using the internal human resources at the plant, with a specific view to empowering the employees. In addition, formal training specific to human resource management and communication should be provided to supervisors and managers. The bonus program should be rethought and clearly explained to all

employees so that they understand the link between their performance and the payments made through the gain-sharing program. It is also suggested that the company change the practice of hiring inexperienced supervisors and promote from within, providing qualified employees with the opportunity to advance within the company.

APPENDIX I – FIGURES AND TABLES

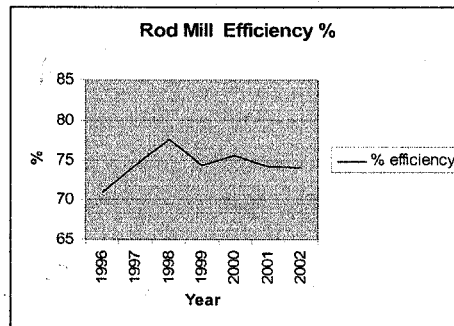


Figure 1 – Canadian manufacturing plant operation efficiency

Table 1 - Comparable "Copperod" plant operation efficiency

Plants	Operation Efficiency
SCCC (France)	81-82%
UM (Belgium)	82-85
PD (U.S.)	78-80

Table 2 – ClearPicture Corp’s EVI’s industry wide classification grid.

EVI Index	Classification
80 % and more	Within" best of class"
Between 70% and 79 %	Definitively strong, but can still be improved
Between 60 % and 69 %	Can do better
Between 40% and 59 %	Should do better
Below 40 %	Critical need for improvement.

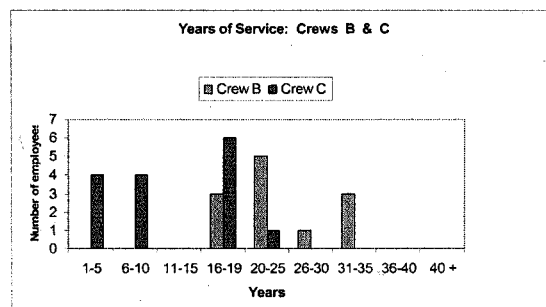
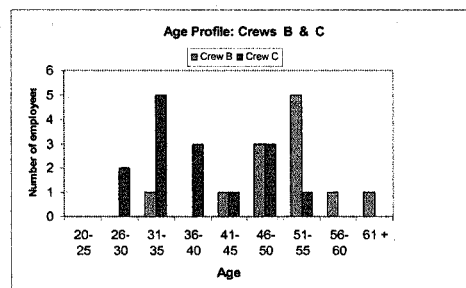
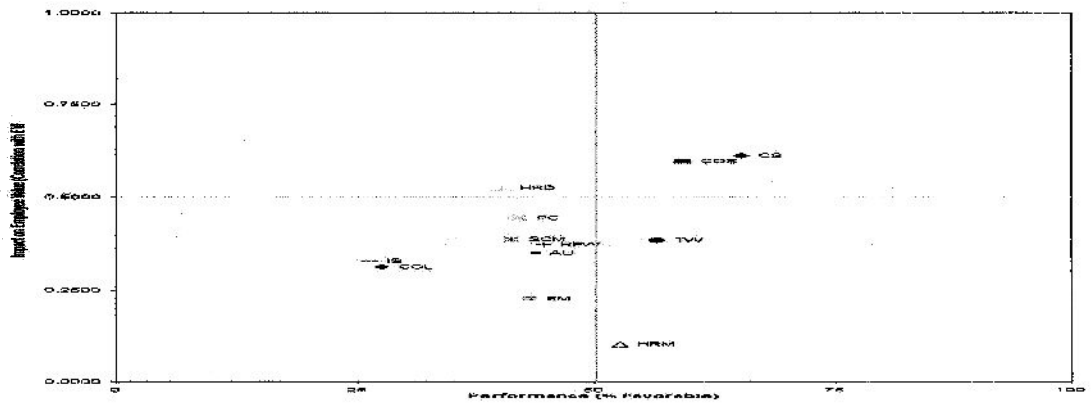
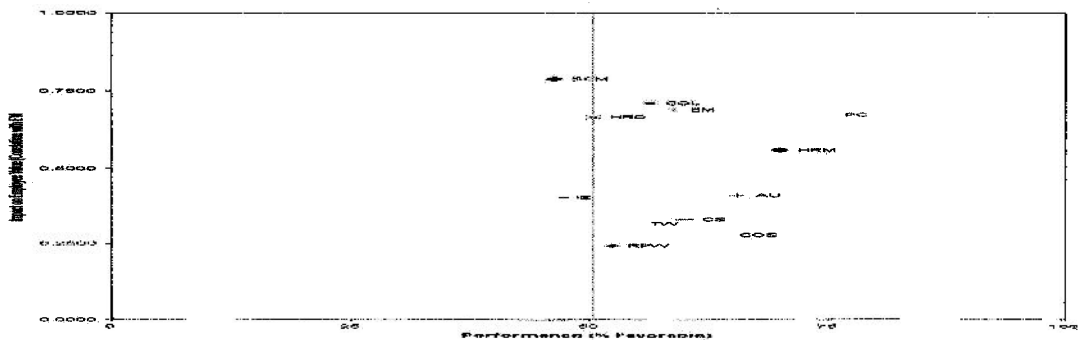


Figure 2 – Montréal Manufacturing plant employee age and seniority

Priority Matrix for Employees



Priority Matrix For Management



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