A Project Management Guide to Improving Productivity

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Abstract

Workplace productivity affects every aspect of a business. Many variables affect an employee's performance and productivity, none more than human and social interaction in the office or job site. This paper establishes an assessment of some human interaction factors that affect productivity. The factors are divided between basic human needs and motivators. The data presented condense the findings of a selected survey group in the engineering, chemical, petroleum, and construction industries. The authors identify specific applications for specific productivity principles. The conclusions and recommendations establish a guideline to help companies to experience a paradigm shift in performance philosophies, and to establish a workplace culture to fuel productivity.

Key Concept

Workers who are truly productive at their jobs don't just produce numbers of products or services, they produce high numbers of high quality products or services, feel highly valued for their work, and feel better about themselves and their companies as a result.

Introduction

Worker productivity is important to all industries. Corporations are constantly looking for better ways to optimally utilize their employees. Companies reduce their workforce to stay lean while competing in the business sector. Adding tasks and responsibilities to fewer workers increases stress and anxiety levels. Workers overloaded with tasks can feel less cared-about and less committed to their employers, which in turn can actually decrease productivity rather than increase it. Yet, a worker who is truly productive at his job will produce better quality and quantity goods or services. What really affects worker productivity? We report the results of a study done on factors affecting worker productivity.

Methodology

The methodology for this project consisted of a literature review, survey through questionnaire, interviews, analysis of results, and recommendations. The literature review studies factors affecting the productivity of today's professionals. Because this project focused on a case study of a selected group of people, the literature resources were utilized as a guide in analyzing the data obtained from the questionnaires and interviews. Several industries in the Charleston, West Virginia, area were studied.

Discussion of Theory

Kurt Lewin's fundamental theories of human behavior (Hersey, et al. 2001) states that a person's behavior is a function of the person and the situation.

Behavior = *function of* (Person, Situation)

The person and the situation are interdependent. This fundamental concept of human behavior has led to many models and theories of motivation and interactions between employees, their environment or situation, and management (e.g., the Situational Leadership concepts of Hersey, et al. 2001). Two well-known theories of human behavior are those of Maslow and Herzberg.

Abraham Maslow theorized that human behavior is directly affected by a particular hierarchy of human needs. These needs are common amongst most people. The hierarchy of these needs is illustrated in Figure 1.
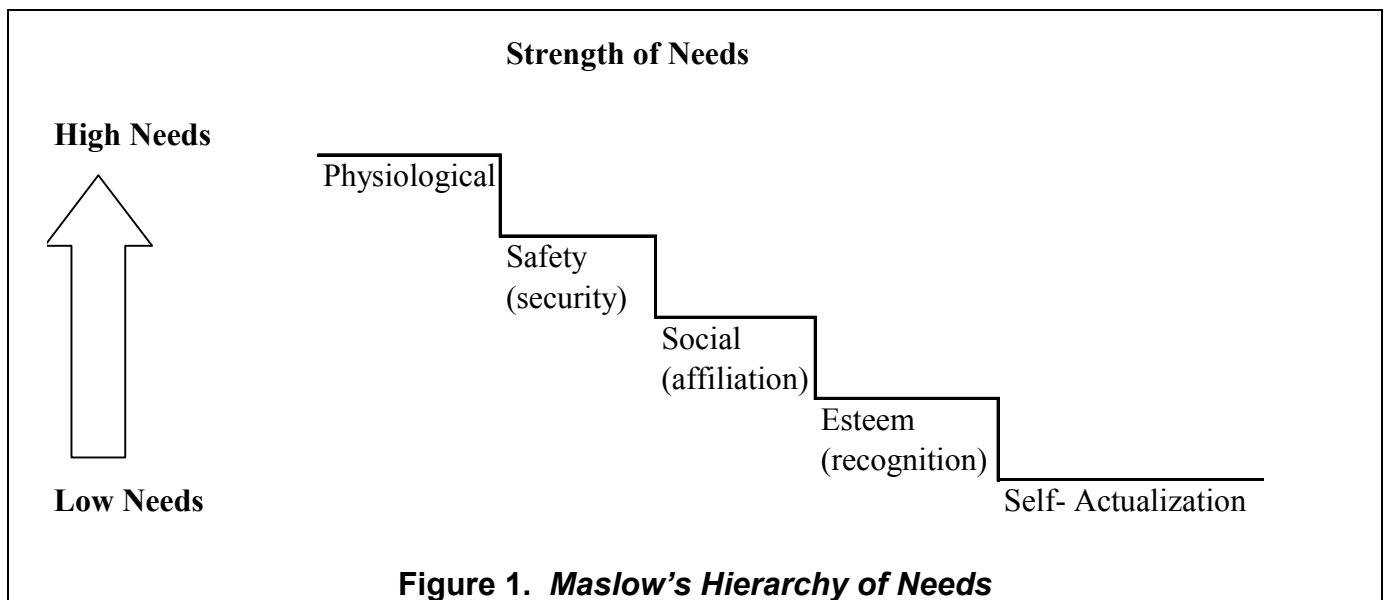
Strength of Needs

High Needs

Physiological

Safety (security)

Social (affiliation)

Esteem (recognition)

Low Needs

Self- Actualization

Figure 1. *Maslow's Hierarchy of Needs*

The first category of needs identified by Maslow is those that are Physiological. Physiological needs are shown at the top of the hierarchy because they have the highest strength until they are satisfied. Examples of physiological needs are food, clothing, and shelter. Until these types of needs are adequately fulfilled, all other needs are less important.

The second highest category of needs is Safety. Safety is also known as security. This need is a concern with the future. Many companies fall short of this need in current corporate environments.

The middle need identified by Maslow is the need for social interaction. This need is also referred to as affiliation. People are social beings that have the dominant need to feel accepted by various social groups. People reach out to others for relationships and a sense of belonging.

After satisfying a sense of social belonging, the next natural human need will be the one of Esteem. This is the need for both self–esteem and recognition by peers and supervisors. This will produce a feeling of self worth, usefulness, and the ability to have some affect on one's environment.

The final strength of needs is one of self-actualization. Self-actualization is the need to maximize ones potential, whatever that may be. Maslow expressed it best by stating, "What a

man can be, he must be." This need is fulfilled in many ways depending on the individual and the environment.

Frederick Herzberg developed a similar theory know as the Motivation-Hygiene Theory. Herzberg theorized that the importance of esteem and self-actualization become more important as individuals develop in life. The Herzberg theory categorizes needs into hygiene factors and motivators. Hygiene, or maintenance, factors describe people's environment and serve a primary function of preventing job dissatisfaction. These factors are rarely permanently satisfied and must be maintained again and again—therefore hygiene factors are sometimes called maintenance factors. Satisfied hygiene factors tend to eliminate performance restrictions on a worker's capacity. However, hygiene factors do little to motivate an increase in capacity. Instead, motivators must be utilized to increase worker's capacity.

Herzberg described motivators as factors that seem to be effective in motivating people to increase performance. These motivators are related to achievements, growth, recognition, and incentives. Figure 2 below illustrates a summary of motivators and hygiene factors.

Motivators	Hygiene Factors
The Job Itself	Environment
Achievement	Policies and administration
Recognition	Supervision
Challenging work	Working conditions
Increased responsibility	Interpersonal relations
Growth and development	Money, status, security

Figure 2. *Herzberg Motivation and Hygiene Factors*

If hygiene factors are not satisfied adequately, a decline in performance and productivity may be intentional or the employee may not consciously realize that he or she is holding back. Many of today's companies suffer from this decline of productivity. Most employees operate at ninety percent performance capacity when basic hygiene factors are satisfied and maintained (Hersey, et al. 2001). Studies by Texas Instruments have shown that performance can be reduced to an average of sixty percent of full capacity if hygiene factors are dissatisfied (Hersey, et al. 2001). The dissatisfied hygiene results are illustrated in Figure 3. Conversely, if hygiene factors are adequately satisfied and the person is given the proper motivators for creativity and growth, then productivity and capacity can be increased. The employee can still be operating at ninety percent capacity, but now this is based on a given increased performance capacity, as illustrated in Figure 4. Essentially the employee has grown to a new capacity and ability level. The same study by Texas Instruments is testimony to this increased capacity and productivity.

Figure 3. *Effect of Dissatisfying Hygiene Factor*

Figure 4. *Effect of Satisfying Motivators*
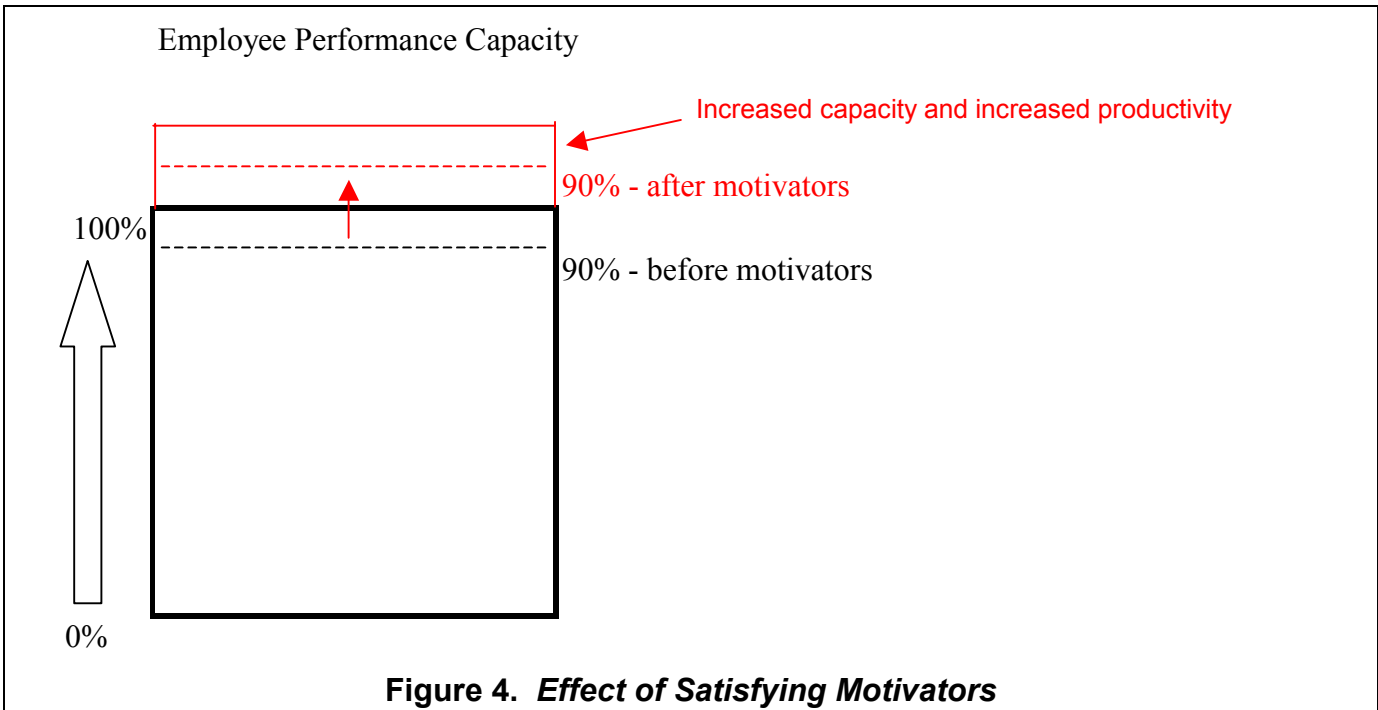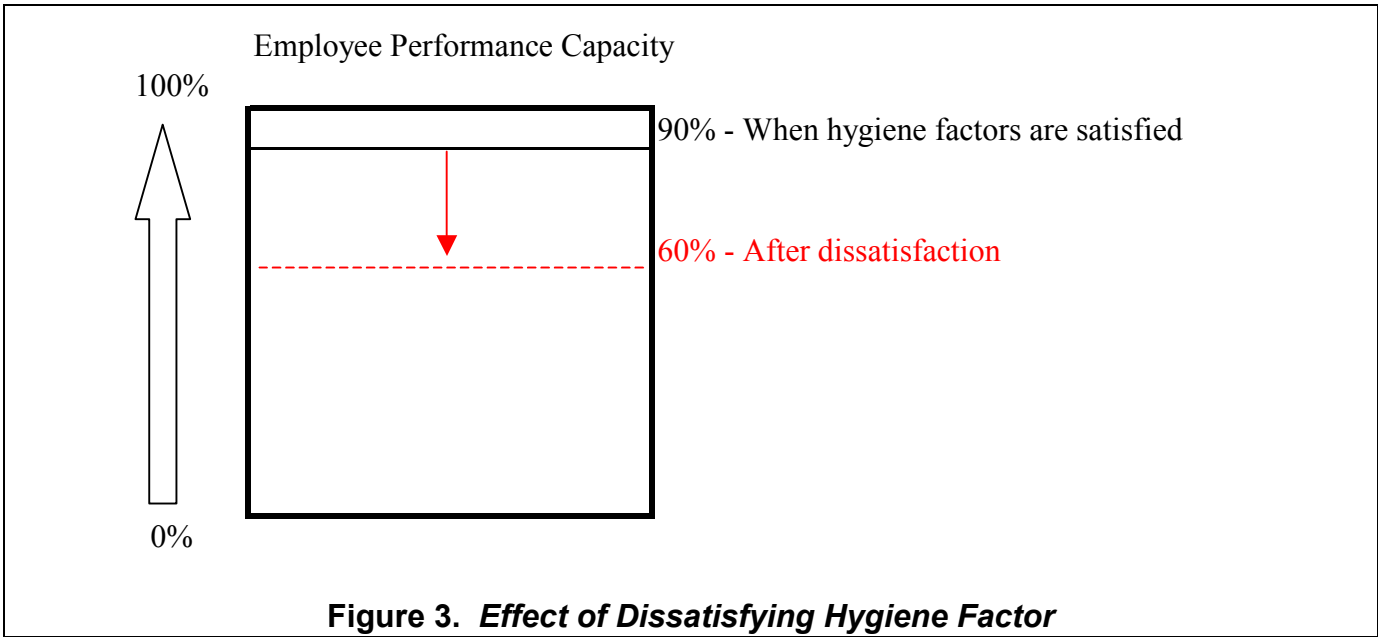
Case Study

Our simple, business productivity questionnaire consisted of three basic questions. These questions allowed the reader to be creative and document what truly affects his productivity. One hundred twenty-nine questionnaires were distributed and seventy-three were returned, giving a fifty-six percent return rate. Table 1 shows the industries that made up the seventy-three returned questionnaires.

Table 1. *Industry Summary of Returned Questionnaires*

Business	Respondents
Petroleum	10
Chemical	9
Construction	5
Engineering contractor	39
Others	10
	73

Table 2 illustrates the distribution of experience levels of the seventy-three returned questionnaires.

Table 2. *Experience Summary of Returned Questionnaires*

Years of Experience	Respondents
< 7	10
7 to 15	23
15 to 22	32
>22	8
	73

We focused on three factors that affect productivity: Stress, Environment, and Self Worth, and identified eleven application areas within these factors, given in Table 3. Stress and Environment are excellent examples of hygiene factors. Self Worth is a powerful motivator. "Too low of a position to make a difference" and "No motivation to do a good job" are border line motivators, depending on the given situation. The following sections will attempt to dissect and understand the results of the returned questionnaires. We will mainly focus on the three most-frequently mentioned application areas: (1) "Company has no sense of loyalty to me;" (2) "Fearing layoffs;" and, (3) "Too much work."

Table 3. *Applications of factors affecting productivity*

Number	Application	Related Factor
1	Too Much Work	Stress
2	Fearing Layoffs	Stress
3	Supervisor judging too hard	Stress
4	Company expecting too much	Stress
5	Too low of a position to make a difference	Self Worth
6	Company does not trust me	Self Worth
7	No motivation to do a good job	Self Worth
8	No team building	Environment
9	Company has no sense of loyalty to me	Environment
10	Coworkers don't work together	Environment
11	No future with this company	Environment

<u>"Too much work"</u>

The application area, "Too much work," was the most frequently mentioned factor affecting employee productivity in the survey. Forty-eight of the seventy-three respondents identified this as a concern (~66%). This indicates that the stress of too much work is wide-spread among the survey group. People in all experience levels identify this as a problem, especially those in the 7-15 years and >22 years categories. This result agrees with much of the literature reviewed as background to this project. Figure 5 summarizes the results.

Figure 5: Too Much Work.
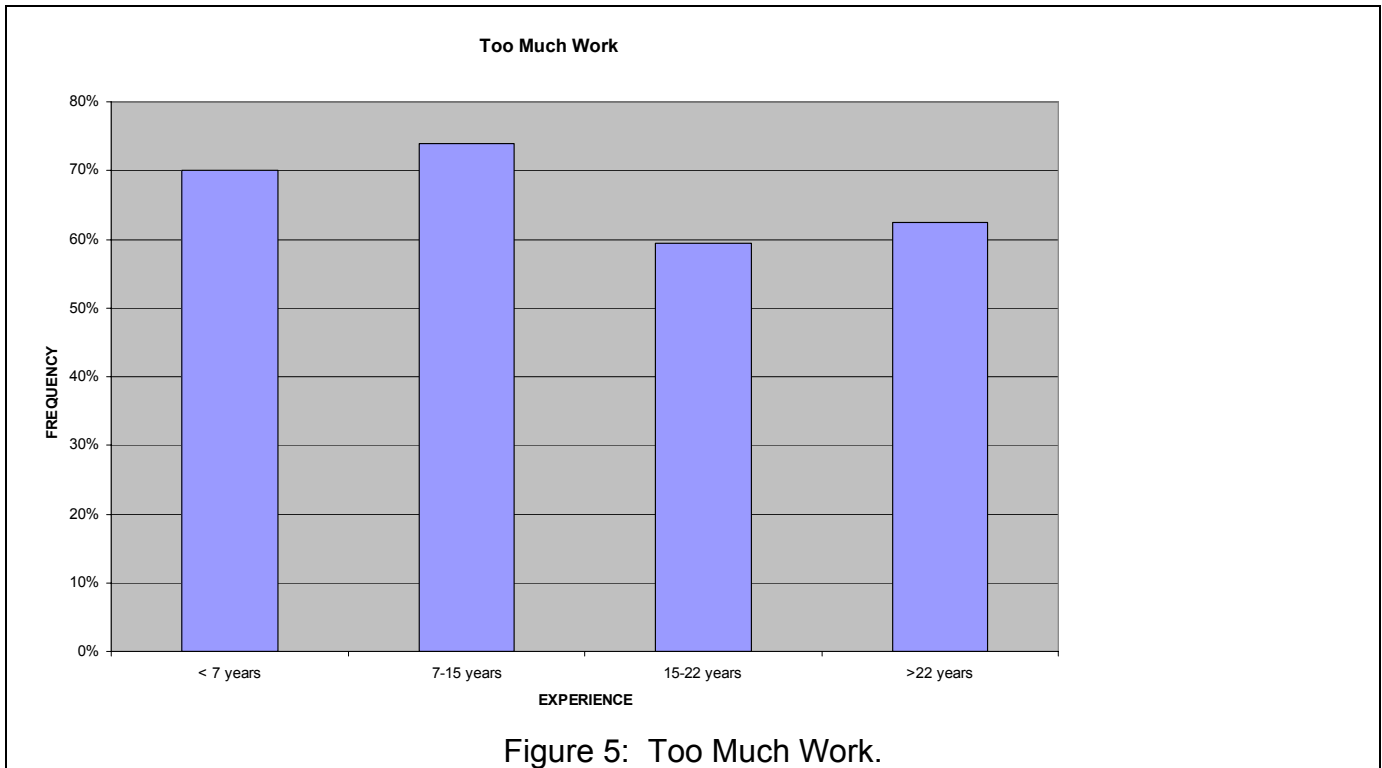
<u>"Fearing layoffs"</u>

The application area, "Fearing layoffs," was the second-most frequently mentioned factor affecting employee productivity in the survey. Thirty-three of the seventy-three respondents identified this as a concern (~45%). Among the respondents citing this factor, there is a clear trend that differentiated one experience level from another—generally this stress is increasing with experience. The very high response among those with greater than twenty-two years of experience is dramatic. This senior level employee likely has deep roots in his/her location and would find relocation difficult. Senior-level employees are closer to retirement and could have more to lose monetarily that does a less-experienced employee. Figure 6 summarizes the results.
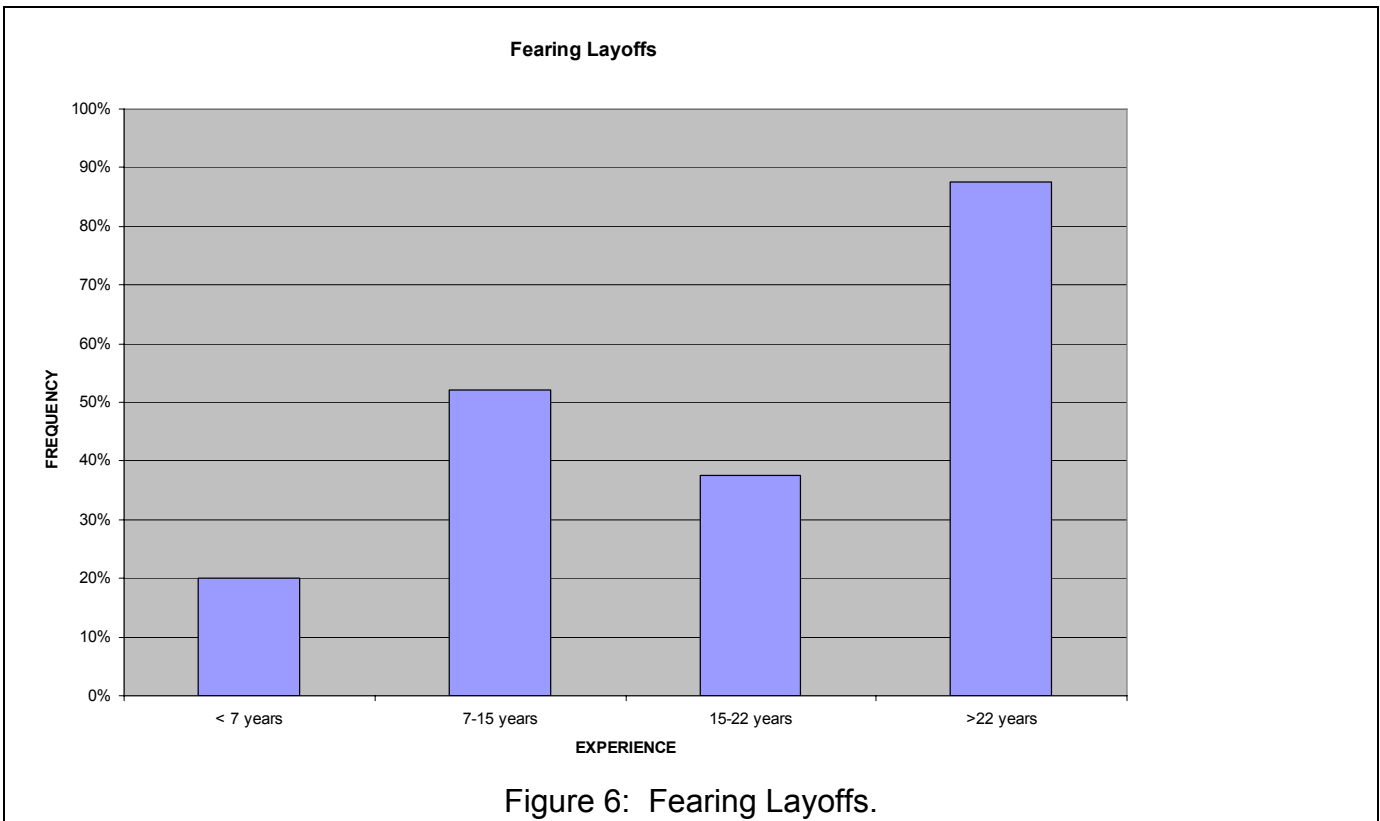
Fearing Layoffs

Figure 6: Fearing Layoffs.

"Company has no sense of loyalty to me"

The application area, "Company has no loyalty to me," was the third-most frequently mentioned factor affecting employee productivity in the survey. Thirty-one of the seventy-three respondents identified this as a concern (~42%). Among the respondents citing this factor, there was no clear trend that differentiated one experience level from another. The concern here is that the company leaders are viewed as looking out only for themselves and not the employees. The scandals within companies like Enron are extreme examples. Figure 7 summarizes the results.

Company has no loyalty to me

Figure 7: Company has no sense of loyalty to me.
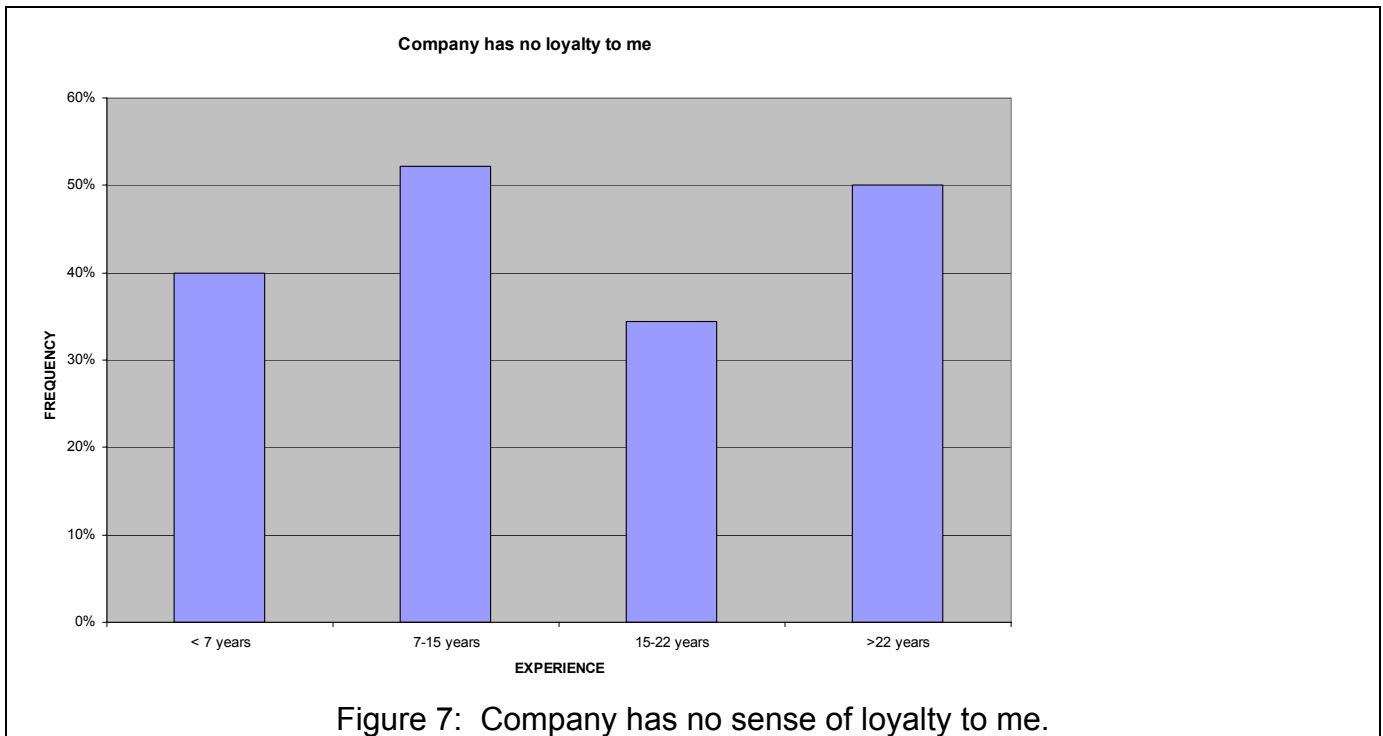
Graphical Results from Other Application Areas

The graphical results of the other application areas are given in the Appendix.

Brief Discussion and Conclusions

More companies need to be people-conscious. This survey shows an important weakness in this area. In the short-term, companies might be able to squeeze out more revenue for their investment by not caring about their people, but in the long-term there will be serious consequences if employers neglect the basic hygiene factors and motivators of their employees. It is the strong believe of the authors that long-term neglect in this area will have severe consequences for business.

The "Principle-Centered" approaches of gurus like Stephen Covey (1989) seem to be needed today as much as ever in today's workplace. In cultures that focus on the people aspects of being principle-centered, managers and supervisors, not just the Human Resources Department, help employees balance work with family issues and other concerns: workers are not expected to be obsessed only with their work; workers are free, with responsibility, to express their opinions in a constructive way with the expectation that their views will be respected and considered seriously; and human assets are considered to be the most important to a company.

Bibliography

Covey, Stephen. The Seven Habits of Highly Effective People. New York, NY: Simon & Schuster (1989).

Hersey, P., et al. Management of Organizational Behavior—Leading Human Resources. 8th ed. Saddle River, NJ: Prentice Hall (2001).

About the Author(s)

David Hill has eleven years of experience at CDI. He is currently an Program Director for CDI Business Solutions. He has a B.S. in Mechanical Engineering from West Virginia University Technical Institute and an M.S. in Engineering from Marshall University.

Eldon R. Larsen is a Professor of Engineering at the Marshall University Graduate College where he is Coordinator for the Master of Science in Engineering degree. He chairs the Marshall University Graduate Council. Dr. Larsen has taught Project Management courses since 1994 in industrial and university settings. Dr. Larsen received BS and MS degrees in Chemical Engineering from Brigham Young University. He has a PhD degree in Chemical Engineering from the University of California at Berkeley.

Dr. Larsen worked 16 ½ years for Union Carbide Corporation (UCC). At UCC he led a major effort to develop and implement Project Management for Research and Development. As a result of his efforts, he received an individual "Chairman's Award," the highest award an individual could receive at UCC.

Dr. Larsen is currently the national First Vice Chair of the Management Division of AIChE, and is a past Second Vice Chair and Director of that division. He has served as Vice Chair, Chair, and Past Chair, and is currently again the Vice Chair of the Charleston Section of the AIChE. He is an At-Large Director of the West Virginia/Ohio Valley Chapter of the Project Management Institute (PMI).
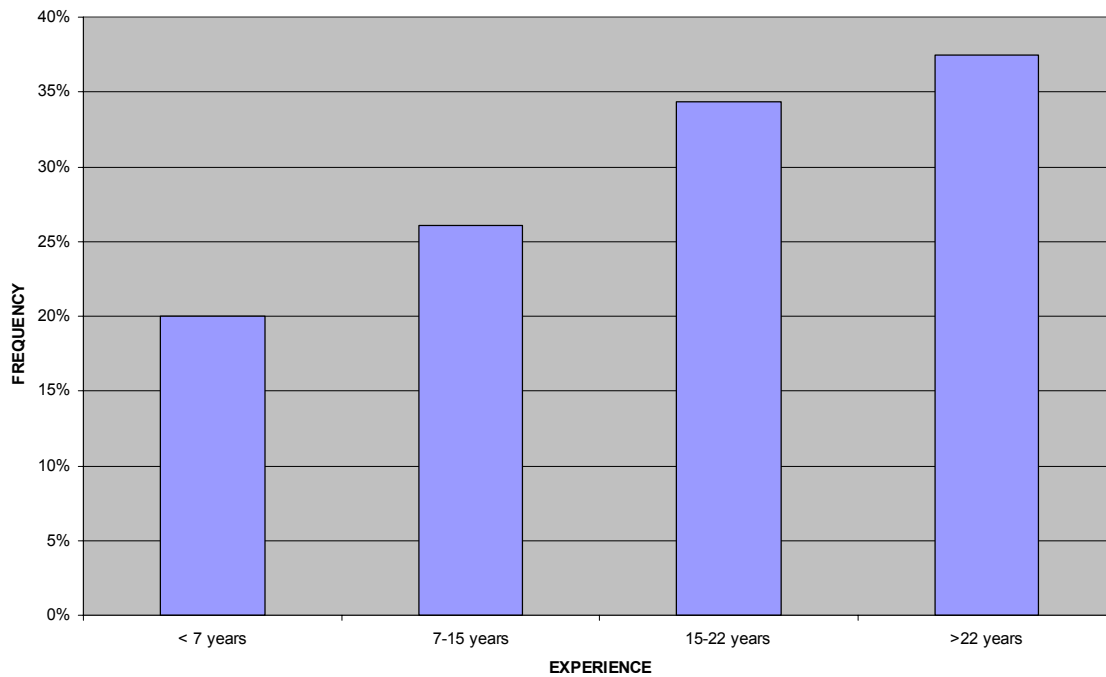
APPENDIX

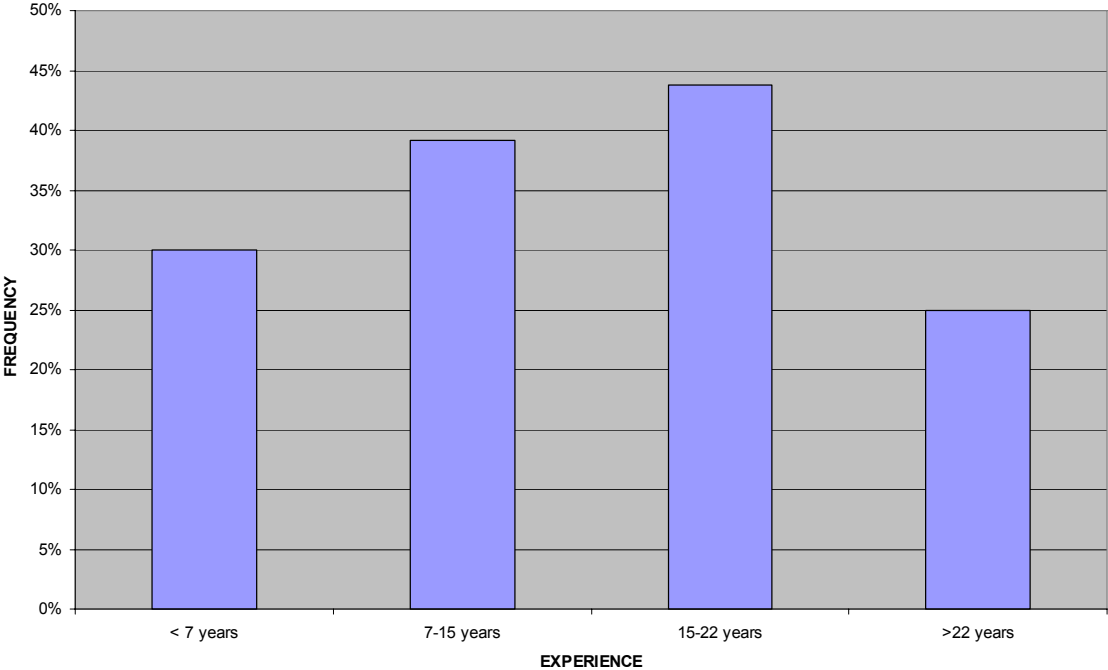The following graphs summarize the results not already reported in the body of this report.
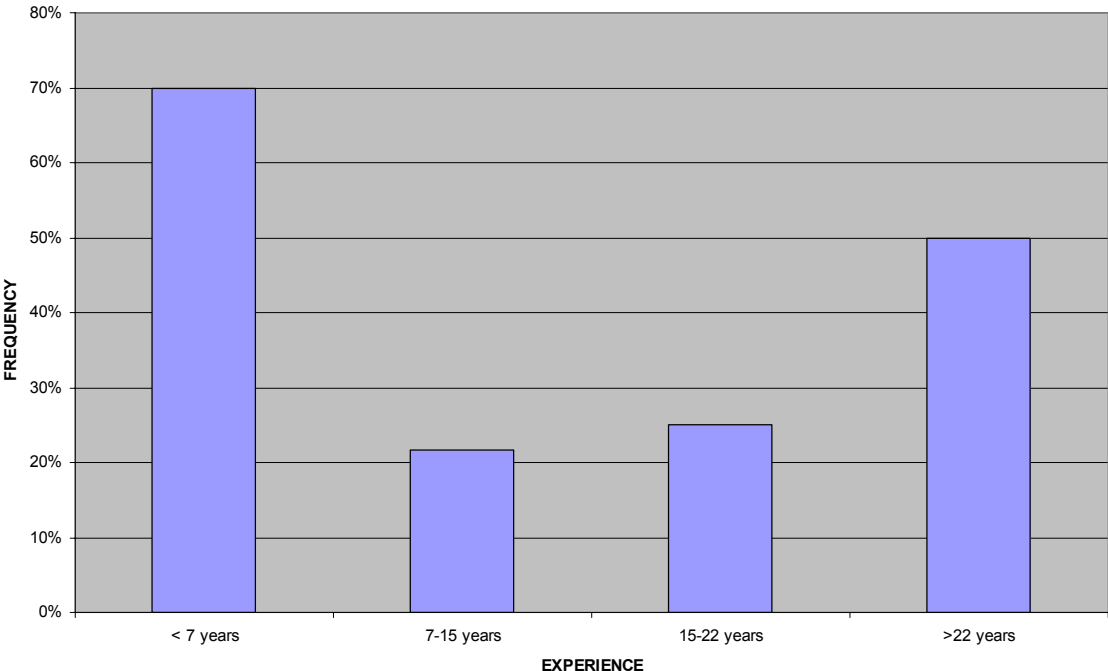
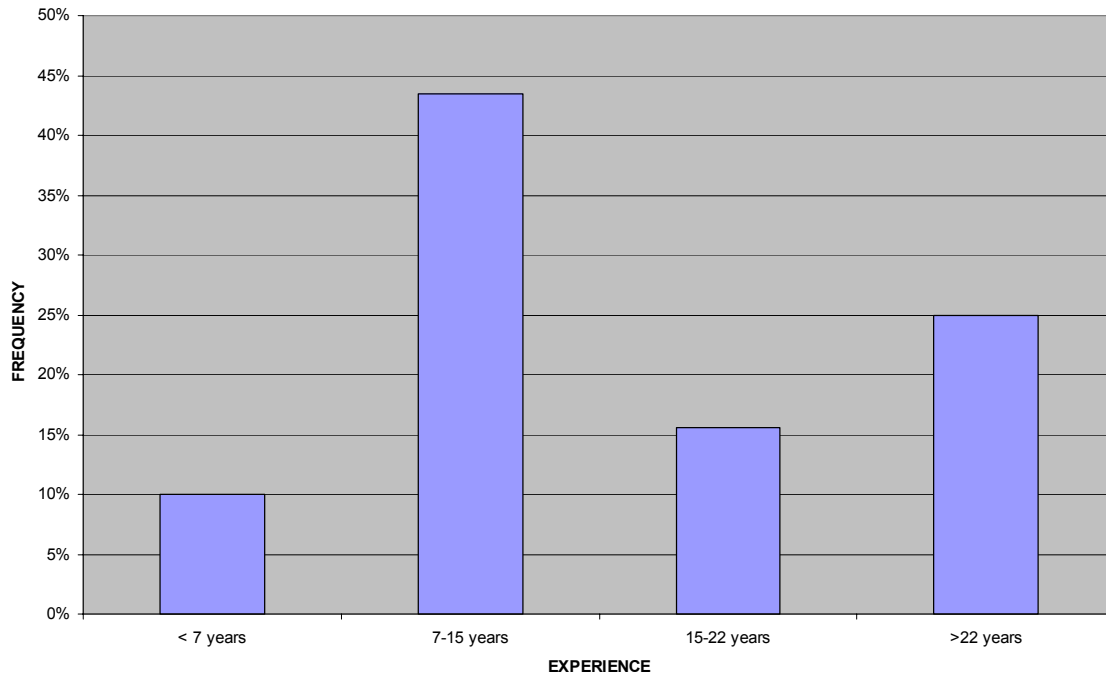**Company Expecting Too Much**
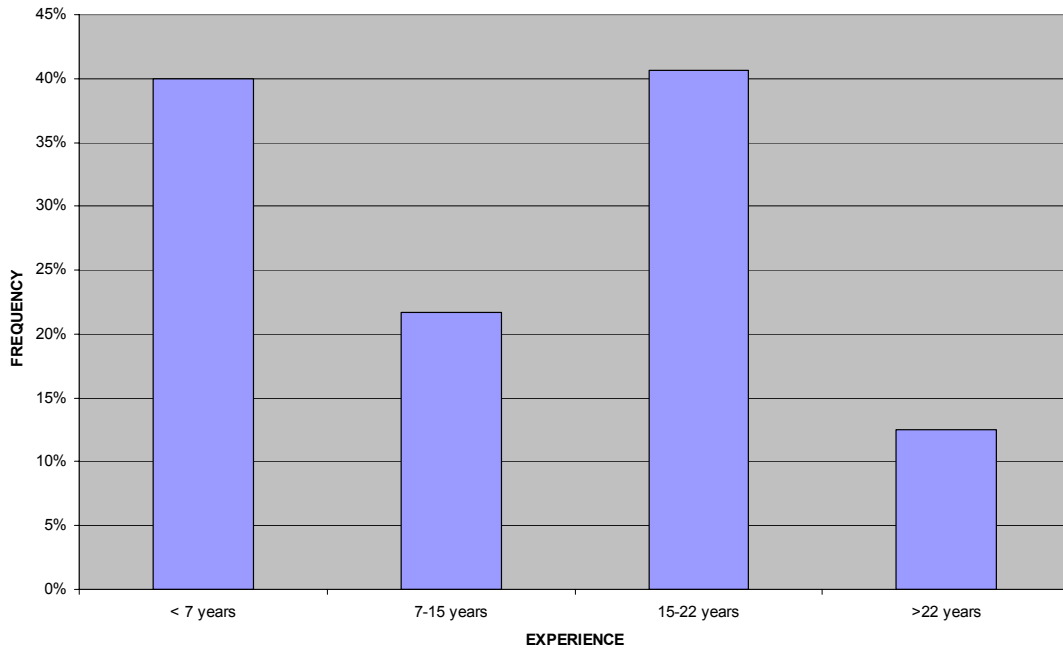
Supervisor Judging Hard

Too Low of a Position to make a Difference

No Motivation to do a good job

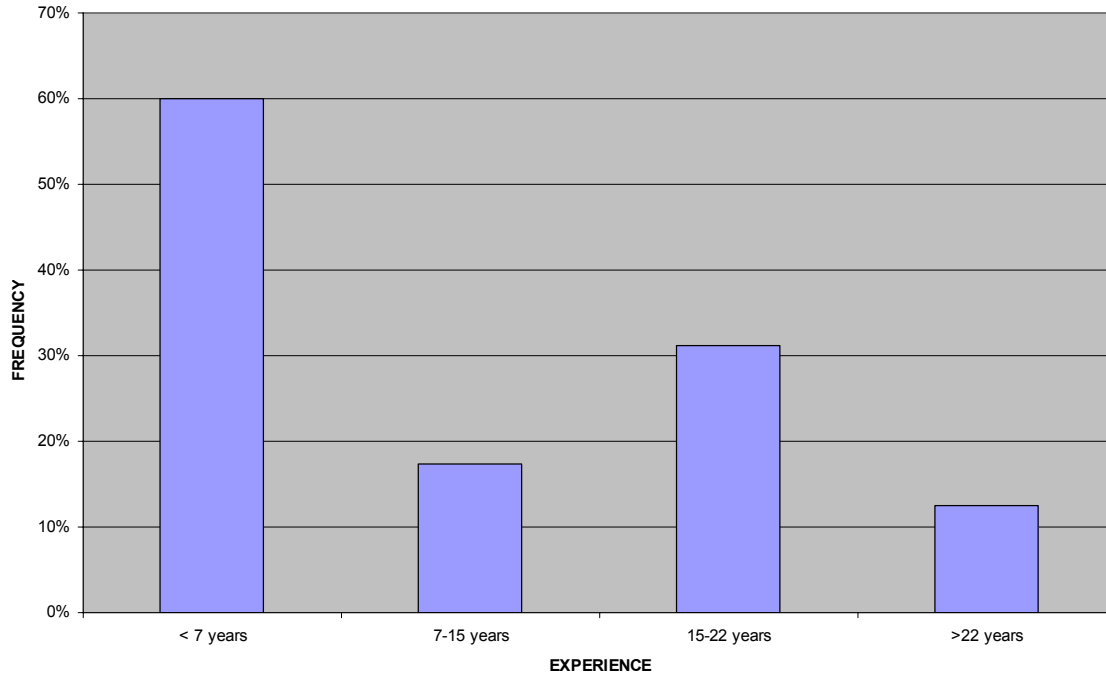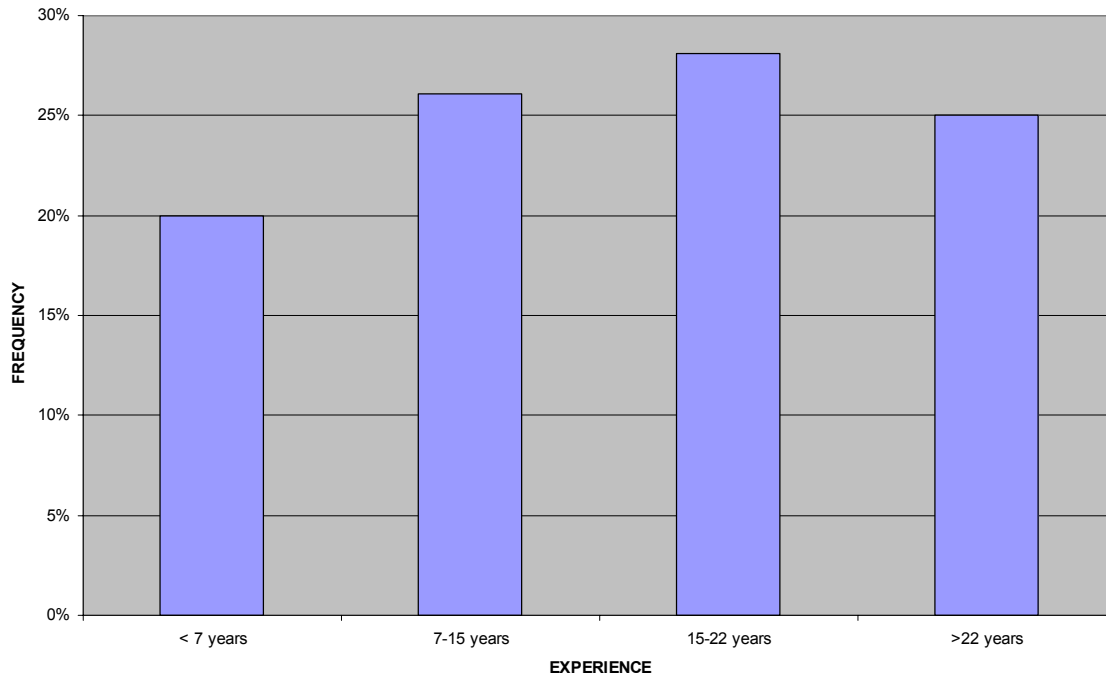## Company does not trust me

No Future with this Company

No Team Building

Co-workers don't work together