THE HUMAN ELEMENTS OF JIT AND SERVICE SECTOR SALES PROFESSIONALS' CUSTOMER ORIENTATION AND JOB SATISFACTION

by

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Introduction

Many view the implementation of Just-In-Time (JIT) as a way for U.S. firms to regain their competitive edge in world markets [1] [11] [19]. JIT is a “philosophy of operations management that encompasses all aspects of a firm’s production activities—human relations, vendor relations, and technology” [4]. Two fundamental goals are expressed throughout the JIT literature: the elimination of wastes (technical elements) and the respect for human resources (human elements) [21].

The majority of JIT research focuses on the manufacturing sector and the technical elements of JIT, while excluding the service sector and the human elements of JIT [7]. Benson [2] noted that JIT does not focus on products but on processes thus justifying its application in the service sector. Rosenbloom [13] and Rosenberg and Campbell [12] acknowledged that elements of the JIT system have application outside of manufacturing, specifically in the area of increasing the efficiency of marketing channels. Alster [1] provided case studies demonstrating how a retail chain and a financial services company improved operational efficiency and effectiveness through the use of the human elements of JIT (HJIT). Tesfay [20] and Wehrenberg [22] proposed that the principles of JIT can be applied to service functions within manufacturing organizations (e.g. human resource management).

Even in the manufacturing sector where JIT is most heavily researched, HJIT elements are frequently ignored. Hopkins [7] indicates that despite the importance of the human resource elements in the successful implementation of JIT, little has been written about the topic. Two articles [17] [23] however, do address the importance of attention to the human factors in the successful implementation of JIT at Harley-Davidson.

A pilot study for this project, conducted in three different service firms (motor carrier, telephone, and air carrier), found a significant relationship between the presence of the human elements of Just-In-Time (HJIT) and the Customer Orientation (CO), and Job Satisfaction (JS) of
the firms’ sales personnel [6]. The study demonstrated that there is a significant difference in the level of JS and CO between those firms studied which exhibited the HJIT elements and those that did not.

The significant positive relationship found in the pilot study between the level of HJIT and salespersons’ customer orientation may lead to the hypothesis that customer orientation is a conduit to customer satisfaction. This hypothesis was investigated by Saxe [15] who concluded that a relationship existed between customer orientation and customer satisfaction. If this is the case, it follows that adopting the HJIT elements will enable a service organization to improve the satisfaction level of its customers. It is also possible that the increased level of job satisfaction associated with HJIT might lead to increased customer satisfaction.

The pilot study also supports the contention that when service sector managers view employees as their most valuable assets, possessing unlimited potential, and provides them with equitable compensation, opportunities for training, education, and participation, and a forum for open communication, the employees will display higher levels of customer orientation. The HJIT environment may not only be conducive to higher employee job satisfaction, but may also benefit the company in terms of better customer-salesperson relations and customer satisfaction. This should translate into higher sales and long-term profitability. It is therefore imperative that researchers begin to more closely examine the JIT human elements and their applicability to the service industry along with the technical and manufacturing aspects of JIT.

The objective of this research was to further investigate the relationships discovered during the pilot study [6]. Specifically, this proposed study addressed the following research questions:

1. Does a relationship exist between service sector management’s use of HJIT elements and the customer orientation (CO) of that sector’s sales professionals?
2. Does a relationship exist between service sector management’s use of HJIT elements and the level of job satisfaction (JS) of that sector’s sales professionals?
3. Is there a significant difference in the level of salesperson customer orientation (CO) between companies with high HJIT environments and those with low HJIT environments?
Fig. 1 HJIT, Customer Orientation, & Job Satisfaction

HJIT Elements

Employee involvement
  Quality circles
  Bottom-round management

Continual improvement
  Attitude toward automation

Cooperative spirit
  Attitude toward workers
  Company Union
  Lifetime Employment

Multifunctional workers
  Multiskilling

Salesperson’s Customer Orientation

Customer Satisfaction

Salesperson’s Job Satisfaction
4. Is there a significant difference in the level of salesperson job satisfaction (JS) between companies with high HJIT environments and those with low HJIT environments?

Methodology

This study consisted of a survey of sales professionals (subjects) in the motor carrier (trucking) industry. Sales Managers at a convenience sample of seventy-six motor carrier companies taken from mailing lists of companies in this industry were contacted and agreed to participate in this study. Packets were mailed to the Sales Managers at the participating companies. The packets consisted of a cover letter to each sales professional in the firm describing the survey, a survey form, and a postage-paid envelope for the respondents to use to mail their completed survey forms directly to the researchers. This procedure assured that the individual responses were anonymous.

Seven Just-In-Time human elements, identified in the literature [1] [2] [4] [7] [9] [14] [17] [18] [20] [21], representing four theoretical dimensions were used to measure the degree to which an organization approximates the JIT philosophy. The elements underlying the four theoretical HJIT dimensions are: 1. Multiskilling, 2. Lifetime Employment, 3. Company Unions, 4. Attitude Toward Workers, 5. Automation/Robotics, 6. Bottom-round Management, 7. Quality Circles (See Figure 2).

A seven point Likert multi-item scale was developed to measure the employees’ perception of the presence each of the seven HJIT elements (variables) in the organizations being studied. Development of the HJIT scale was accomplished in three stages: item generation, pre-testing, and selection of the best items by expert judges. The final HJIT scale was combined with the Customer Orientation Scale developed by Saxe [15] and the Job Satisfaction Scale by Hoppock [8] to form the instrument used in the pilot study and in this follow-up study.

The data collected in this study were subjected to factor analysis to determine the underlying dimensions of HJIT. Correlation analysis was used to address research questions one and two. ANOVA was used to address research questions three and four.
Fig. 2 Key Elements of JIT

Technical Elements
- Total quality control
- Steady production rate
- Reliable vendors
- Pull system
- Low inventories
- Small lot sizes
- Preventive maintenance
- Low setup time
- Product layout
- Group technology

Human Elements
- Employee involvement
  - Quality circles
  - Bottom-round management
- Continual improvement
  - Attitude toward automation
- Cooperative spirit
  - Attitude toward workers
  - Company Union
  - Lifetime Employment
- Multifunctional workers
  - Multiskilling
Results

A total of 443 survey instruments were sent to sales professionals in 76 motor carrier companies. Fifty-eight useable responses were received for a response rate of 13.1%. Chronbach alphas were calculated for each scale to determine the degree of internal consistency. The coefficient alpha for the HJIT scale was .91, .83 for Saxe's CO scale (which is consistent with other reported uses of this scale [3, 10, 16]), and .79 for Hoppock's JS scale.

Principal components factor analysis with verimax rotation revealed that there were four interpretable dimensions (factors) underlying the seven JIT elements found in the literature. These factors, shown in Table 1, differed somewhat from the four theoretical dimensions shown in Figure 2.

Table 1. Factor Analysis Results

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. My manager never lets me know how well I am performing on the job.</td>
<td>1 .74 2 -.09 3 -.31 4 .01</td>
</tr>
<tr>
<td>21. I am satisfied with the opportunity to participate in any change in company policy, before a change is decided upon.</td>
<td>2 .73 1 -.15 3 .10 4 .16</td>
</tr>
<tr>
<td>14. I am satisfied with the amount of personal growth and development I get in doing my job.</td>
<td>3 .72 1 -.34 2 -.18 4 .09</td>
</tr>
<tr>
<td>10. My manager denies me any chance to use my personal initiative or judgement in carrying out the work.</td>
<td>4 .69 1 -.22 2 -.36 3 .10</td>
</tr>
<tr>
<td>12. My manager treats me more like a machine than a human being.</td>
<td>5 .66 1 -.08 2 -.40 3 .26</td>
</tr>
<tr>
<td>19. I am satisfied with my opportunities to discuss work-related problems with other employees.</td>
<td>6 .66 1 -.12 2 -.30 3 -.19</td>
</tr>
<tr>
<td>23. I am given ample opportunity to discuss work-related issues with my fellow employees.</td>
<td>7 .65 1 .01 2 .07 3 -.44</td>
</tr>
<tr>
<td>7. I am satisfied with the verbal rewards I receive when I do a job correctly.</td>
<td>8 .61 1 -.44 2 -.40 3 -.19</td>
</tr>
<tr>
<td>6. I am satisfied with the promotion opportunities I have in my job.</td>
<td>9 .58 1 -.44 2 -.29 3 -.02</td>
</tr>
<tr>
<td>18. I am not satisfied with the opportunities for employee education</td>
<td>10 .52 1 -.20 2 -.04 3 .04</td>
</tr>
<tr>
<td>16. I am satisfied with the amount of challenge in my work.</td>
<td>11 .51 1 -.49 2 -.00 3 -.42</td>
</tr>
</tbody>
</table>
9. If the company does well, I will do well. .50 -.35 -.26 -.19
13. I am given ample opportunity to be creative and imaginative in my work. .50 .10 -.44 .26

FACTOR 2: Job Security & Job Responsibility

ITEMS

2. I am satisfied with the long-term security this organization offers me. .28 -.78 -.24 .12
5. This job provides great job security .23 -.76 -.36 .03
1. I am satisfied with the amount of job security I have. .31 -.74 -.19 .16
4. It is hard, on this job, for me to care very much about whether or not the work gets done right. .18 -.60 -.04 -.04
25. Whether or not the job gets done right is clearly my responsibility. -.01 -.58 .04 .12
28. If management were considering a computerized system that could perform half of your present duties, would you worry about your job security? .02 -.57 .04 .12

FACTOR 3: Cooperative Spirit

ITEMS

20. I am not satisfied with my boss’ willingness to listen to any new ideas I may have. .15 -.17 -.71 .07
15. I am not satisfied with the degree of respect and fair treatment I receive from my boss. .40 -.03 -.68 .14
24. I feel that management views machines as a way to eliminate employees from the payroll. -.13 -.07 -.66 -.20
3. My position with this company is very tenuous; I do not know from one minute to another whether I will continue to have a job. -.02 -.48 -.57 .16
17. My boss does not solicit my ideas on how to improve the service. .31 -.39 -.51 .07

FACTOR 4: Multifunctional Workers

ITEMS

26. How much autonomy is there in your job? That is, how much freedom does management give you in performing your job? .08 -.09 -.20 .68
27. How much variety is there in your job? That is, to what extent does the job require you to do many different things at work, using a .10 -.27 .07 .66
variety of your skills and talents?
22. I am usually not consulted before a
difference in company policy is enacted.
8. Compared to the amount I contribute
to the organization, I am not
satisfied with the amount I am paid.

The cumulative percent of variance explained by these four factors is 56.8%. The lowest observed communalities were 0.287 for item 22 (Factor 4) and 0.310 for item 18 (Factor 1). The communalities for all the other items were above 0.350.

Research Question 1

A correlation analysis was conducted between the respondents’ HJIT scale score and their customer orientation scale score. This analysis showed no relationship between motor carrier management’s use of HJIT elements and the customer orientation (CO) of that sector’s sales professionals. This is contrary to the pilot study results for the single trucking company. A significant correlation was discovered between the sales professionals’ customer orientation and their job satisfaction (see Figure 3). The latter finding is consistent with the pilot study results.

Research Question 2

A correlation analysis was conducted between the respondents’ HJIT scale score and their job satisfaction scale score. This analysis showed that a significant positive relationship exists between motor carrier management’s use of HJIT elements and the level of job satisfaction (JS) of that sector’s sales professionals (see Figure 3). This is consistent with the pilot study results for the single trucking company.

Research Question 3

The HJIT scores were partitioned at the median value into high HJIT and low HJIT. The HJIT score represents the employee’s perception of his/her company’s use of the HJIT elements. A one-factor ANOVA was conducted to determine whether there was a significant difference in the level of salesperson customer orientation (CO) between companies with high HJIT environments and those with low HJIT environments. No difference was discovered in the customer orientation of the sales professionals working in high and low HJIT companies.
Fig. 3  Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>Pilot Study</th>
<th>Follow-Up Study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HJIT</td>
<td>CO</td>
</tr>
<tr>
<td>HJIT</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>0.75 *</td>
<td>1.0</td>
</tr>
<tr>
<td>JS</td>
<td>0.57 *</td>
<td>0.82 *</td>
</tr>
</tbody>
</table>

* Significant @ 0.0001
** Significant @ 0.01
*** Significant @ 0.05
NS  Not Significant
Research Question 4

Using the same partitioned HJIT scale scores, another one-factor ANOVA was conducted to determine whether there was a significant difference in the level of salesperson job satisfaction (JS) between companies with high HJIT environments and those with low HJIT environments. The analysis showed that there was a significant (at the .05 level) difference in the job satisfaction of sales professionals working in high and low HJIT companies. Sales professionals working for companies that they perceive to have high usage of the HJIT elements are more satisfied with their jobs.

Conclusions

The project documented in this working paper confirmed that a significant positive correlation exists between the customer orientation and job satisfaction of sales professionals in the trucking industry. More customer oriented sales professionals tend to be more satisfied with their jobs.

This project failed to find a significant relationship between the company’s perceived use of the HJIT elements and the customer orientation of that company’s sales professionals. A significant positive correlation was found to exist between the company’s perceived use of the HJIT elements and the job satisfaction of that company’s sales professionals.

Additional research and data analysis are underway to address the following questions:

* Are there differences in the relationships between the four individual HJIT dimensions identified in the factor analysis and the CO and JS results?
* What are the reasons for the unexpected lack of correlation in this study between HJIT and CO?
References


