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The Impact of Kaizen on Job Satisfaction

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Abstract

This paper attempts to examine the impact of Kaizen on job satisfaction. Moreover, the impact of Kaizen on job satisfaction aspects such as work satisfaction, workplace satisfaction, coworker satisfaction, management satisfaction, promotion satisfaction, pay satisfaction, and fringe benefit satisfaction is assessed. The survey data used in this paper contains 965 managerial and non-managerial employees, of which 387 employees were from two non-Kaizen implementing textile industries and 578 were from three Kaizen implementing textile industries. Ordered Probit estimation results reveal that Kaizen implementing and non-implementing employees do not significantly differ in their likelihoods of job, work, workplace, coworker, management, and promotion satisfaction. However, Kaizen implementing employees are found to be more likely to be satisfied with their pay and fringe benefit than non-implementing employees.

Keywords: Kaizen, job satisfaction

1. Introduction

Mr. Masaaki Imai, a major Kaizen scholar and the founder of Kaizen Institute, defined Kaizen^A as “continuous improvement.” This continuous improvement is expected to be achieved at a lower cost and with full participation of managers and workers. After the publication of Mr. Masaaki Imai’s book, *Kaizen: The Key to Japan’s Competitive Success*, in 1986, the term Kaizen has been regarded as one of the crucial management concepts. Moreover, the early 21st-century success of Toyota Motor Company, which made Toyota ahead of General Motors in becoming the top Automotive Manufacturing Company in the world, increased the awareness on how Kaizen played a decisive role in Toyota’s success. Currently, Kaizen concepts have become widespread outside Japan and are implemented in more than 50 countries around the world (Imai, 2012).

As Kaizen has been spreading in different countries and organizations, its popularity in academic literature has also increased. This increase has been evidenced by the availability of several studies investigating the effect of Kaizen on different organizational outcomes. In general, vast majorities of Kaizen studies are devoted to examining the relationship between Kaizen and company performance^B. Studies that investigate the relationship between Kaizen implementation and job satisfaction are scarce^C. Thus, the purpose of this study is to examine this relationship.

My paper improves upon previous studies that examine the relationship between Kaizen and job satisfaction/motivation on several fronts. For example, Nahmens, Ikuma & Khot, (2012) studied the relationship between Kaizen and job satisfaction using a survey data of 5 workers from industrialized homebuilding plant. Their results reveal that job satisfaction increased by 11.4% after Kaizen implementation, but the result was not statistically significant. Obviously, their study’s weakness is its small sample size, and my study improves in this regard since I use a survey data of 965 employees from five textile industries.

^A The term Kaizen comes from two Japanese words, “Kai” and “Zen”. “Kai” means, “change” and “Zen” means, “for better”. So, “kai” + “zen” = “change for better”

^B For instance, Bayo-Moriones, Bello-Pintado, & Merino-Díaz de Cerio, (2010); Belekoukias, Garza-Reyes, & Kumar, (2014); Doolen, Van Aken, Farris, Worley, & Huwe, (2008); Garcia, Maldonado, Alvarado, & Rivera, (2014); Ikuma, Nahmens, & James, (2011); Marin-Garcia, Garcia-Sabater, & Bonavia, (2009); Rahman, Laosirihongthong, & Sohal, (2010); Smadi, (2009) and Terziovski & Samson, (1999) have studied the effect of Kaizen or Kaizen related practices on company performance.

^C Berg (1999); Cheser, (1998); Harmon, Scotti, Behson, & Farias, (2003) and Nahmens, Ikuma, & Khot, (2012) have studied the impact of Kaizen or Kaizen related practices on job satisfaction or motivation

Berg, (1999) and Harmon, Scotti, Behson, & Farias, (2003) respectively examined the impact of high-performance work practices and high involvement work systems on job satisfaction and found a positive result. However, both studies lack control groups since companies which did not implement such practices or systems were excluded. My paper addresses this issue by using an original survey of five companies, out of which two of them did not implement Kaizen and serve as control groups.

Using data from three departments in three diverse industries, Cheser, (1998) has shown that employees involved in Kaizen implementation have a higher motivation than those who are not involved. However, the surveyed employees come from three different industries and moreover, within each company they performed different tasks. Cheser's study did not adequately control for the motivation/satisfaction differences that stem from working in different industries and performing different tasks. Thus, it is not clear whether the estimated effects are indeed the Kaizen effect or whether estimated effects merely capture the differences in motivation/satisfactions stemming from working in different industries and performing different tasks. In contrast, in my study, all the survey data came from homogeneous industry (textiles). In addition, I control for company-fixed effect as well as departmental-fixed effect.

Moreover, my study improves these previous studies as I analyse the impact of Kaizen on various aspects of job satisfaction, namely; *work satisfaction, workplace satisfaction, co-worker satisfaction, management satisfaction, promotion satisfaction, pay satisfaction, and fringe benefit satisfaction*. Furthermore, I control for various individual characteristics such as *age, gender, education, tenure/experience, and position*. Those are basic characteristics which the studies by Nahmens et al., (2012) and Cheser, (1998) did not control for. Finally, to the best of my knowledge, my study, which is conducted in Ethiopia, is the first study conducted outside of the United States and Europe on the relationship between Kaizen and job satisfaction.

The rest of the paper is organized as follows: chapter 2, reviews literature; Chapter 3, explains about methodology; chapter 4, present result and discussion; and finally, chapter 5 is allotted for recommendations and conclusion.

2. Literature review

Job satisfaction is defined as the extent to which employees like/dislike their job; how they are content with their job; and how much their needs and desires are fulfilled at work (Muchinsky, 1987

(as cited in Reiner & Zhao, 1999, P, 8); Sageer, Rafat, & Agarwal, 2012; and Spector, 1997).

As job satisfaction literature shows, factors which affect job satisfaction includes (1) “intrinsic task rewards” (e.g. skill utilization, task significance, autonomy, feedback, self- development), (2) “extrinsic social rewards” (e.g. co-worker relationships, employee-management relationships), (3) “extrinsic organizational rewards” (e.g. pay, promotion, benefit) and (4) individual characteristics (e.g. age, sex, education, tenure)^D.

According to Hackman and Oldham, (1974), job satisfaction emanates from intrinsic job characteristics. Job characteristics such as usage of worker's skills and talent, the importance of the task and nature of the task lead to a psychological state of finding the work meaningful. In addition, exercising autonomy and getting feedback on performance respectively put workers in a psychological state of experiencing responsibility and knowing what has been achieved. Thus, experiencing these psychological states leads to job satisfaction.

In Herzberg theory of job satisfaction, factors intrinsic to the job or motivator factors such as recognition, achievement, self-development, responsibility, advancement and work itself brings job satisfaction. Hygiene factors or factors extrinsic to the jobs such as pay, benefit, interpersonal relationships, supervision, organizations’ policy and administration affect job dissatisfaction (Herzberg, 1968).

The study by Mottaz, (1985) have also revealed the relative importance of “intrinsic task rewards” (e.g. skill utilization, task significance, autonomy, feedback, self- development) over “extrinsic social rewards” (e.g. co-worker relationships, employee-management relationships); yet, both of them are important determinants of job satisfaction. It is also mentioned that “extrinsic organizational rewards” (e.g. pay, promotion, benefit) are found to be more important determinants of job satisfaction for the lower occupational groups.

^DCheser, (1998); Ellickson, (2002); Hackman and Oldham, (1974); Herzberg, (1968); Mottaz, (1985); Nahmens, Ikuma, & Khot, (2012) and Ting, (1997)

Moreover, Ting, (1997) and Ellickson, (2002) have shown, task significance, skill utilization, relationships between co-workers and supervisors, payment and benefit satisfactions, training, workload, promotion opportunity and organizational commitment to be significant factors affecting government employees job satisfaction.

Thus, Kaizen implementation is expected to affect job satisfaction through “intrinsic task rewards” and “extrinsic social rewards”. For example, Kaizen enables employees to enjoy “intrinsic task rewards” as individual and group participation platforms allow workers to exercise autonomy, use their talent and skills, get feedback on their performance, make a contribution to their organization and advance themselves. “Extrinsic social rewards” can also be enjoyed since Kaizen implementation increase coordination and mutual- learning among employees. Moreover, Kaizen is likely to improve employee-management relations as top-down management approach is accompanied by a bottom-up approach. “Extrinsic organizational” rewards might be enjoyed to some extent since in-kind or monetary recognition are given to best-performing groups or individuals in Kaizen activities (Imai, 2012 & (Union of Japanese Scientists and Engineers [JUSE], 1980).

As Kaizen is expected to affect job satisfaction through “intrinsic task rewards”;

H1: Kaizen implementing employees are more likely to be satisfied with their job than non-implementing employees.

H2: Kaizen implementing employees are more likely to be satisfied with their work than non-implementing employees.

H3: Kaizen implementing employees are more likely to be satisfied with their workplace than non-implementing employees.

As Kaizen is expected to affect job satisfaction through “extrinsic social rewards”;

H4: Kaizen implementing employees are more likely to be satisfied with their coworker than non-implementing employees.

H5: Kaizen implementing employees are more likely to be satisfied with their management (managers/supervisors) than non-implementing employees.

Kaizen might affect *promotion, pay and benefit satisfaction* to some extent through Kaizen award system and attitude/perception change; however, the impact of Kaizen on these areas of satisfaction

3. Methodology

3.1 Company selection

To study the impact of Kaizen on job satisfaction, both Kaizen implementing and non-implementing companies were included. As Table 2 shows, out of five textile companies participated in this study, three of them implemented Kaizen and two of them did not. The respondents were 965 managerial and non-managerial employees of which 387 employees were from the two non-Kaizen implementing industries and 578 were from the remaining three Kaizen implementing industries.

Kaizen implementing companies that were selected for this study started kaizen implementation in 2013/2014 budget year and had received awards for best Kaizen performance (Yeshilmat Aterar, 2015). These Kaizen implementing companies are relatively large and have cotton preparation, spinning/knitting, dying/printing and garment departments. Some of their products are yarn, woven and knitted fabric, bed sheet, towel, t-shirts, uniforms, and pants. Non-Kaizen implementing companies selected for this study also produce products similar to Kaizen implementing companies such as t-shirts, uniforms, jackets, pants and knitted fabric. These non-Kaizen implementing companies are relatively small and mostly garment industries.

Table 2. Companies information

| Company Code | Number of Respondents | Kaizen Implementation Status | Sector | Kaizen Implementation Starting Year Under EKI |
|--------------|-----------------------|------------------------------|---------|---|
| Company A | 258 | Implementing | Textile | end of 2013 |
| Company B | 122 | Implementing | Textile | 2014 |
| Company C | 198 | Implementing | Textile | end of 2013 |
| Sub-Total | 578 | | | |
| Company D | 92 | Non-implementing | Textile | — |
| Company E | 295 | Non-implementing | Textile | — |
| Sub-Total | 387 | | | |
| Total | 965 | | | |

3.2. Questionnaire administration

The questionnaire was first prepared in English and then translated into the official language of the country, Amharic. Then it was sent or handed to Kaizen offices and human resource/planning departments respectively in Kaizen implementing and non-implementing companies. Thus, questionnaire administration was carried out by the respective Kaizen offices and human resource/planning departments from August 29 to September 25, 2016.

The questionnaire asks the following eight areas of job-related satisfactions: (1) *overall job satisfaction*, (2) *work satisfaction* (3) *workplace satisfaction* (4) *coworker satisfaction*, (5) *management satisfaction*, (6) *promotion satisfaction*, (7) *pay satisfaction*, and (8) *fringe benefit satisfaction*.

Although most of the satisfaction items are self-explanatory, other items require some explanations. *Management satisfaction* refers to the degree to which workers are satisfied with middle and upper managements' support, encouragements, follow up, respect, quick response. *Workplace satisfaction* refers to the satisfaction emanated from the physical condition of the workplace such as neatness, arrangements, safety and having the discipline of maintaining neat and pleasant workplace. *work satisfaction* refers to a satisfaction obtained from not having overburden; performing some specific task with better quality, productivity, delivery, cost; learning new things; making a contribution; and having better coordination with co-workers

All the questions related to job satisfaction were asked in the following ways: "Overall how satisfied are you with your job?" or "Overall how satisfied are you with your pay?"^E. Respondents answered according to a five-point Likert Scale from 5 (very Satisfied) to 1 (very dissatisfied). To avoid confusion, explanations were added under each question except for pay satisfaction as it is self-explanatory. In addition, the questionnaire asked questions related to demographic information such as *age, sex, education, work experience, department, and position*.

^E Nagy, (2002); Scarpello & Campbell, (1983); and Wanous, Reichers & Hudy (1997) showed the acceptability of the use of the single-item measure. Moreover, Berg, (1999); Ellickson & Logsdon, (2002) and Ting, (1997) used single item questions in their study.

Both Kaizen implementing and non-implementing companies' employees were asked the same questions regarding the satisfaction and demographic information. However, Kaizen implementing company employees were asked additional questions about their Kaizen training and implementation experience.

3.3 Data

As Table 3 shows, Kaizen implementing employees mean *age*, *experience* and *education* are 30.4, 8.4 and 13 years respectively whereas for non-implementing employees these figures respectively take the mean value of 26.4, 4.4 and 11 years. Females share accounts for 33% and 78% respectively in Kaizen implementing and non-implementing employee's groups. Large share of female employees in non-Kaizen implementing group is mostly because garments industries are typically female dominated^F. The share of managerial level employees is 34.6% in Kaizen implementing group while it is 18.6% in the non-implementing group. This might also be explained by the company size difference as Kaizen implementing companies have many department and employees; thus, many managerial positions compared to non-implementing companies.

^F "Women represent on average 68 percent of the workforce in the clothing industry, 45 per cent in textiles, and 46 percent in the leather and footwear industries, and in some countries women can constitute as much as 90 percent of the employees in these industries (United Nation Industrial Development Organization (UNIDO), 2013 (as cited in International Labor Organization (ILO), 2014, P, 12)).

Table 3. Demographic information summary statistics

| Non-Kaizen implementing Company | | | | | |
|---|--------------|-----------|-----------|-----|-----|
| Variables | Observations | Mean | Std. Dev. | Min | Max |
| age | 359 | 26.42061 | 7.970176 | 17 | 56 |
| sex (1, if female & 0, otherwise) | 381 | 0.7821522 | 0.4133262 | 0 | 1 |
| experience | 289 | 4.374095 | 6.050974 | 0 | 36 |
| years of education | 310 | 10.99355 | 1.975568 | 1 | 17 |
| Position (1, if managerial position & 0, otherwise) | 306 | 0.1862745 | 0.3899658 | 0 | 1 |
| Kaizen implementing Company | | | | | |
| Variables | Observations | Mean | Std. Dev. | Min | Max |
| age | 535 | 30.39065 | 8.692775 | 18 | 68 |
| sex | 575 | 0.3304348 | 0.4707792 | 0 | 1 |
| experience | 486 | 8.354444 | 8.028401 | 0 | 34 |
| years of education | 564 | 13.03369 | 1.746023 | 0 | 17 |
| Position | 547 | 0.345521 | 0.4759731 | 0 | 1 |

3.4 Estimation Model

As the dependent variables are ordered variables, Ordered Probit estimations were used to examine whether Kaizen implementation affected various job-related satisfactions. The estimation model is given as:

$$(\text{Job-related satisfaction})_i = \beta_0 + \beta_1(\text{Implemented})_i + \beta'X_i$$

$$+ (\text{company fixed effects}) + (\text{Department fixed effects}) + u_i$$

where the subscript *i* refers to an individual worker. *Job-related satisfaction** is the latent variables for the eight job-related satisfaction variables. There are 5-point job satisfaction ratings for (1) *overall job satisfaction*, (2) *work satisfaction* (3) *workplace satisfaction* (4) *coworker satisfaction*, (5) *management satisfaction*, (6) *promotion satisfaction*, (7) *pay satisfaction* and (8) *fringe benefit satisfaction*. For each area of satisfaction, we estimate one Ordered Probit model. *Implemented* is the dummy variables for the company that implemented Kaizen. If Kaizen implementation improves job

satisfaction, then β_1 should show a positive sign. X_i is the vector of demographic characteristics, which include *age*, *sex*, *education*, *work experience*, and the dummy for holding a managerial *position*. These variables have been commonly controlled for in the literature.

Since companies *choose* to implement Kaizen, it is likely that implementation of Kaizen is correlated with unobserved company characteristics, which is also likely to directly affect various areas of job-related satisfactions. The inclusion of company fixed effects reduces this endogeneity problem. The inclusion of company fixed effects is possible since the unit of analysis is individual workers. In addition, we control for department fixed effects to absorb any differences in job-related satisfaction that stem from the types of tasks performed.

4. Result and discussion

In this section, Ordered Probit estimation results and marginal effects which are respectively presented in Table 4 and Table 5 will be discussed.

Table 4. Estimation result

| | overall job satisfaction | work satisfaction | workplace satisfaction | coworker satisfaction | management satisfaction | promotion satisfaction | pay satisfaction | fringe benefit satisfaction |
|--|-----------------------------|----------------------|---------------------------|--------------------------|----------------------------|---------------------------|----------------------|--------------------------------|
| implemented 1 if implemented kaizen, 0 otherwise | -0.0338 [0.254] | -0.0812 [0.246] | 0.232 [0.24] | 0.0152 [0.262] | 0.144 [0.253] | 0.424 [0.261] | 0.769*** [0.24] | 0.517** [0.246] |
| position 1 if managerial position, 0 otherwise | 0.11 [0.109] | 0.123 [0.1] | 0.00961 [0.106] | -0.0998 [0.114] | | 0.383*** [0.111] | 0.123 [0.105] | 0.280** [0.112] |
| education | 0.0522** [0.0266] | 0.0254 [0.027] | 0.0369 [0.0279] | 0.006 [0.0301] | -0.00451 [0.03] | -0.00315 [0.0265] | 0.0606** [0.0272] | 0.00735 [0.0267] |
| age | 0.0231*** [0.00822] | 0.0111 [0.00784] | 0.00797 [0.00834] | 0.0169** [0.00827] | 0.00343 [0.0109] | -0.00314 [0.00882] | 0.0185** [0.0094] | -0.0021 [0.0092] |
| sex 1 if female, 0 otherwise | 0.322*** [0.116] | 0.113 [0.112] | 0.121 [0.11] | 0.307*** [0.11] | 0.188 [0.117] | 0.0304 [0.116] | 0.281** [0.114] | 0.187* [0.111] |
| experience | 0.00541 [0.00835] | 0.00773 [0.00845] | 0.0124 [0.00859] | -0.000163 [0.00867] | 0.00499 [0.0126] | 0.0036 [0.0088] | -0.0146 [0.01] | 0.00421 [0.00924] |
| Number of observations | 626 | 621 | 623 | 624 | 488 | 622 | 630 | 631 |

Standard errors in parentheses

* p<0.10, ** p<0.05, *** p<0.01

Table 5. Marginal effects for statistically significant variables

| Satisfaction Scales | | | | | | | | | | | |
|-----------------------------|-------------|-------------------|--------|--------------|--------|---------------------------------------|--------|-----------|--------|----------------|--------|
| variables | | Very Dissatisfied | | Dissatisfied | | Neither dissatisfied nor satisfied | | Satisfied | | very satisfied | |
| | | dy/dx | P>z | dy/dx | P>z | dy/dx | P>z | dy/dx | P>z | dy/dx | P>z |
| overall job satisfaction | education | -0.0102 | 0.0530 | -0.0069 | 0.0510 | -0.0021 | 0.0510 | 0.0108 | 0.0510 | 0.0084 | 0.0510 |
| | age | -0.0045 | 0.0060 | -0.0031 | 0.0050 | -0.0009 | 0.0070 | 0.0048 | 0.0060 | 0.0037 | 0.0050 |
| | sex | -0.0629 | 0.0050 | -0.0424 | 0.0070 | -0.0130 | 0.0100 | 0.0665 | 0.0060 | 0.0518 | 0.0070 |
| promotion satisfaction | position2 | -0.1222 | 0.0010 | -0.0248 | 0.0020 | 0.0125 | 0.0040 | 0.0938 | 0.0000 | 0.0407 | 0.0030 |
| pay satisfaction | implemented | -0.2614 | 0.0010 | 0.0194 | 0.1210 | 0.0595 | 0.0030 | 0.1372 | 0.0010 | 0.0453 | 0.0070 |
| | education | -0.0206 | 0.0250 | 0.0015 | 0.1550 | 0.0047 | 0.0280 | 0.0108 | 0.0250 | 0.0036 | 0.0500 |
| | age | -0.0063 | 0.0470 | 0.0005 | 0.1680 | 0.0014 | 0.0510 | 0.0033 | 0.0510 | 0.0011 | 0.0680 |
| | sex | -0.0954 | 0.0130 | 0.0071 | 0.1440 | 0.0217 | 0.0170 | 0.0501 | 0.0150 | 0.0165 | 0.0300 |
| fringe benefit satisfaction | implemented | -0.1865 | 0.0340 | 0.0227 | 0.0710 | 0.0323 | 0.0430 | 0.0951 | 0.0370 | 0.0363 | 0.0440 |
| | position2 | -0.1010 | 0.0110 | 0.0123 | 0.0350 | 0.0175 | 0.0140 | 0.0515 | 0.0130 | 0.0197 | 0.0240 |
| | sex | -0.0675 | 0.0910 | 0.0082 | 0.1290 | 0.0117 | 0.0940 | 0.0344 | 0.0990 | 0.0131 | 0.0970 |
| coworker satisfaction | age | -0.0024 | 0.0470 | -0.0025 | 0.0430 | -0.0010 | 0.0440 | 0.0013 | 0.0670 | 0.0046 | 0.0400 |
| | sex | -0.0443 | 0.0070 | -0.0454 | 0.0070 | -0.0176 | 0.0080 | 0.0234 | 0.0190 | 0.0840 | 0.0050 |

4.1 Kaizen Implementation and Job Satisfaction

Table 4 shows that Kaizen implementing employees are more likely to be *very satisfied* or *satisfied* with *the workplace, co-workers, management, promotion, pay* and *fringe benefit* than non-implementing employees, although the results are only significant for *pay* and *fringe benefit* satisfaction. On the other hand, Kaizen implementing employees are less likely to have higher *overall job satisfaction* and *work satisfaction* compared to non-Kaizen implementing employees; nonetheless, these results are not statistically significant. Thus, except Hypothesis 6 the other seven hypotheses are not supported by the data.

As other satisfaction variables (i.e. *overall job satisfaction, work satisfaction, workplace, co-workers, management and promotion satisfaction*) do not show tangible difference between kaizen implementing and non-implementing employees, explanations given below only focus on variables showing significant difference between kaizen implementing and non-implementing employees.

Pay Satisfaction

Even though it was hypothesized that Kaizen implementing and non-implementing employees will not significantly differ in their likelihood of pay satisfaction, the result shows that Kaizen implementing employees are more likely to be satisfied with their pay than non-implementing employees. Compared to non-Kaizen implementing employees, Kaizen implementing employees are 4.5% and 13.7% more likely to be *very satisfied* and *satisfied* respectively with their pay (see Table 4 and 5). Through pay equity concept, Kaizen might explain this difference to some extent in such a way that after employees get Kaizen training they realize that there are many *Mudas* (wastes) involved in their operation that increase the cost of the company; hence, realizing these costs and *Mudas* might induce them to improve their pay equity perception (Berkowitz et al., 1987). Moreover, in one of Kaizen implementing company, employees got pay rise due to better Kaizen performance; hence, this pay raise could have positively affected their pay satisfaction. Thus, *Hypothesis 7* is not confirmed. However, as data on factors affecting pay satisfaction such as the amount of pay and pay comparison were not collected and controlled for, the result may not probably capture the effect of Kaizen alone (Berkowitz, et al., 1987). Thus, further study is needed on this matter.

Fringe Benefit Satisfaction

It was also hypothesized that Kaizen implementing and non-implementing employees will not significantly differ in their likelihood of fringe benefit satisfaction. Nonetheless, the result shows that Kaizen implementing employees are more likely to be satisfied with fringe benefits than non-implementing employees. Kaizen implementing employees are 3.6% more likely to be *very satisfied* and 9.5% more likely to be *satisfied* with their fringe benefit than non-implementing employees (see Table 5 and 6). Thus, *Hypothesis 8* is not confirmed. As there are experiences of awarding best performing KPTs or individuals with money, company product (e.g. bed sheet) and certificate, some portion of benefit satisfaction difference might be explained by Kaizen award systems. However, as the number of employees getting annual or quarterly Kaizen award is small compared to the total number of employees, Kaizen may not be able to explain the whole story behind the difference in benefit satisfaction between Kaizen implementing and non-implementing employees. Moreover, as we have not controlled for benefit schemes, benefit satisfaction difference might probably capture benefit scheme difference between Kaizen implementing and non-implementing employees. Thus, further study is also needed on this matter.

5. Recommendation and conclusion

5.1 recommendations

As presented in the result and discussion part, the hypothesized positive and significant effect of Kaizen on *job, work, workplace, co-worker* and *management satisfaction* was not supported by the data. These results might imply the need to improve different element of Kaizen implementation, specifically, companies' management, EKI and Kaizen office support towards KPTs.

First level Kaizen implementation is mostly carried out on companywide approach. That means Kaizen training and implementation covers all departments and employees. Given the few number of Kaizen office staffs (1-5 workers), it is very difficult to give sufficient support to 100-400 KPTs. Moreover, due to distance and inadequate staffs, EKI consultants could not conduct follow up as frequently as needed and even if they went to the companies, it is difficult to cover all KPTs and give each of them sufficient time. Thus, in Kaizen implementing companies, active involvement of facilitators (supervisors, section heads, and department heads) is needed.

Facilitator groups should improve their support to KPTs in the areas of follow-up, capacity building,

feedback and acknowledging individuals and groups improvement efforts. Furthermore, Kaizen steering committee (consisting of general manager of the company and two or three top managers) strong commitment and active involvement in Kaizen implementation is also needed. Kaizen steering committee's support shall be improved in the areas of capacity building, conducting workplace visit, implementing Kaizen award system and closely supervising Kaizen implementation of the company (at Kaizen office, facilitators, and KPTs level). These improvements from the management side are hoped to improve Kaizen implementing employees' *management satisfaction* and *job satisfaction*.

Capacity building activities on teamwork skills (e.g. meeting, communication, cooperation, mutual learning) and problem-solving skills (e.g. identifying problem, gathering and analyzing data, evaluating implementation result) would improve Kaizen implementing employees *work*, *co-workers* and *job satisfaction*. Thus, both from company and EKI side more should be done on building the capacity of Kaizen office, facilitators, and KPTs.

To improve employees, workplace satisfaction, it could be necessary to revive 5S activities in Kaizen implementing companies. Organizing events such as 5S day and enhancing experience sharing programs within and outside company would be important. Moreover, sustaining 5S requires self-discipline from KPT side, follow up and commitment from management and Kaizen office side, and training and follow-up support from EKI side.

To sum up, in order to improve Kaizen implementing employees *job*, *work*, *workplace*, *co-worker* and *management satisfaction*, companies' management, EKI and Kaizen office support towards KPTs should be enhanced.

5.2 Conclusion

There exist very few studies that examine the impact of Kaizen implementation on job satisfaction. Thus, this paper aims at examining the possible association between Kaizen and job satisfaction. It also aimed at examining the relationship between Kaizen and job satisfactions aspects such as *work*, *workplace*, *co-worker*, *management*, *promotion*, *pay*, and *fringe benefit satisfaction*. As dependent variables were ordered, measured in Five points Likert Scale from "5" which is "very satisfied" to "1" which is "very dissatisfied", Ordered Probit estimation method was used.

The Ordered Probit estimation result shows that *job*, *work*, *workplace*, *co-worker* and *management satisfaction* of Kaizen implementing employees is not found to be statistically different from non-implementing employees. The findings of this study might indicate the need to improve different

element of Kaizen implementation, specifically, companies' management, EKI and Kaizen office support towards KPTs so that Kaizen implementing employees could have better *job, work, workplace, co-worker, and management satisfaction*. On the other hand, positive effect of Kaizen on *pay and fringe benefits satisfaction* might to some extent indicate the importance of Kaizen award system, Kaizen related pay raise and perception/attitude change. Nonetheless, as the amount of pay, pay comparison and different benefit schemes were not controlled for, further studies are needed to re-examine effects of Kaizen on pay and benefits satisfaction.

Finally, this study is not without limitations. First, even though, demographic characteristics should be controlled in job/pay/benefit satisfaction analysis, some studies such as Ellickson, (2002) and Berkowitz et al., (1987) respectively showed that demographic variables explained small variation of job and pay satisfaction. Thus, further studies shall be done including variables such as the amount of pay, fairness of pay, number of promotion and benefits scheme. Second, it was difficult to randomize the sample due to language barrier, employee willingness and production schedule of the company. Thus, future studies with better randomization might improve the finding. Finally, as this study is questionnaire based, it might be affected by the negligence of the respondents.

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