CHAPTER 4: RESEARCH FINDINGS

4.1 Introduction

This chapter will discuss on data analysis and data interpretation. Data analysis was conducted using by Statistical Package for Social Sciences (SPSS). The factor analysis has been conducted to verify the factor grouping for Continuous Improvement measures and Job Satisfaction measures. The reliability tests were then conducted on the variables of Customer Focus, Employee Involvement, Process Management, Supplier as A Key Performance, Individual and Group Recognition, Database Decision Making and Job Satisfaction. The Bivariate analysis is been conducted to identify the correlation among the elements. Then Chi-Square Test and Mann-Whitney U Test are used to identify the impact among the variables that indicated in chapter two.

The result of the empirical study is reported in this chapter. Results are presented in respect of the relationship between Continuous Improvement and Job Satisfaction. The results provide the indication of rejection or confirmation of the hypothesis which stated in chapter two.

4.2 Frequency Analysis

The purpose of this study was to investigate the impact of Continuous Improvement (CI) on employee Job Satisfaction. Therefore it was necessary to identify the respondents' companies were implementing or did not

implement CI. The respondents' Job Satisfactions are then been measured by using the questionnaire form.

A total of two hundreds questionnaires had been randomly distributed to respondents who were working in Klang Valley. Total of one hundred and six qualified questionnaires were returned with the response rate of 53 percent. This is equivalent to Noorliza's (2006) study. The minimum amount of time required by the respondents was fifteen minutes and the maximum time was twenty minutes.

Profile of the respondents is presented on Table 4.1. Out of one hundred and six respondents, female respondents (59 percent) were slightly more the male respondents (41 percent). Majority of the respondents were from young age ground where approximately half of the respondents (57 percent) were in the range of 20 to 29 years old, and follow by 30 to 39 years old (39 percent). The majority of them were single (78 percent) and the rest were married (22 percent). Six percent of the respondents had one child and six percent of them had two children. Majority of the respondents (93 percent) didn't have any children. Half of the respondents were having monthly income in the range of RM2,001 to RM4,000 (51 percent) and 29 percent of them were within the income range of RM4,001 to RM6,000. Besides that, majority of respondents were highly educated, and most of the respondents (78 percent) were degree holders and 13 percent of them were postgraduate holders. In term of service period on current organisation, majority of them (45 percent) had one to three years experience and 18 percent of them were working the current organisation four to five years. 14 percent of them had six to seven years working experience.

Table 4.1: Respondents' Profile

Gender	Frequency	Percentage
Male	43	41%
Female	63	59%

Age range (years)	Frequency	Percentage
20 - 29	60	57%
30 - 39	41	39%
40 - 49	3	3%
50 - 59	1	1%
Less than 20 - 290	1	1%

Marital Status	Frequency	Percentage
Married	23	22%
Single	83	78%

Number of children	Frequency	Percentage
1	6	6%
2	6	6%
3 and above	1	1%
No child	93	88%

Monthly Income	Frequency	Percentage
RM2,000 or less	8	8%
RM2,001 - RM4,000	54	51%
RM4,001 - RM6,000	31	29%
RM6,001 - RM8,000	8	8%
RM8,001 - RM10,000	1	1%
RM10,000 and above	4	4%

Education level	Frequency	Percentage
Secondary / High School	2	2%
Certificate or Diploma	5	5%
Bachelor Degree	83	78%
Postgraduate	14	13%
Professional Certificates	2	2%

Service period on current organisation	Frequency	Percentage
Less than 6 months	5	5%
6 months - 12 months	12	11%
1 - 3 years	48	45%
4 - 5 years	19	18%
6 - 7 years	15	14%
8 - 9 years	3	3%
Over 9 years	4	4%

4.3 Job Satisfaction

The Job Satisfaction Survey (JSS) is a multi dimensional instrument to measure employees' job satisfaction. For this study, the job satisfaction was measured and a composite score on overall Job Satisfaction was calculated based on the sums of these scores. The job satisfaction scores are ranged from thirty nine points to one hundred eighty points. The points are divided to three segments which representing three different levels of job satisfaction – low satisfaction, moderate satisfaction and high satisfaction.

From the total sample of respondents (n = one hundred and six), forty three of the respondents were male and sixty three were female respondents. The study found that the female respondents (98 percent) are generally more satisfied with their jobs than male respondents (96 percent). This is supported by Limon's (1993) finding. The result is presented on Table 4.2. Overall reliability was Cronbach's Alpha level is 0.891. This indicated strong internal consistency and reliability among the Job Satisfaction items for this study. This is supported by Sauer's (2009) study with overall reliability 0.93.

Table 4.2: Job Satisfaction by Gender

	Job Satisfaction		
	Low	**Moderate**	**High**
Score	**36-84**	**85-132**	**133-180**
Male	4%	91%	5%
Female	2%	92%	6%

4.4 Descriptive Statistics

Descriptive statistics are conducted on the data to check the characteristics of the data collection. These descriptive statistics included the mean, standard deviation and skewness analysis. The collected data are continuous type variables (customer focus, employee involvement, process management, supplier as a key performance, individual and group recognition, and database decision making). The result is presented on Table 4.3.

Based on the result, all the variables have negative skewness value. Negative skewness values indicate a clustering of scores at the high end (right-hand side of a graph). This indicates the variables were not distributed on normal curve. Therefore, the non-parametric statistical technique (chi-square test) was chosen to analyse the data.

Besides that, Employee Involvement has the lowest mean value 3.47 with standard deviation 0.52. Employee involvement is the degree to which employees make suggestions for the improvement of the organization's process or product and the degree to which these suggestions are implemented (Culp, 1992). This also takes into consideration employee involvement in decision making. From the result, it shows that the respondents did not get much job satisfaction from the involvement in decision making.

Table 4.3: Summary of Descriptive Statistics

	Mean	Std. Deviation	Skewness
Customer focus	3.72	0.61	-1.03
Employee involvement	3.47	0.52	-0.07
Process management	3.53	0.59	-0.25
Supplier as a key performance	3.57	0.49	-0.51
Individual and group recognition	3.69	0.51	-0.62
Database decision making	3.51	0.74	-0.42

	Mean	Std. Deviation	Skewness
Job satisfaction	3.11	0.40	-0.45

4.5 One way ANOVA

In this test, the Continuous Improvement variables are tested to compare the mean scores among the variable. The null hypothesis is, the mean of Customer Focus (CF) = mean of Employee Involvement (EI) = mean of Process Management (PM) = mean of Supplier as a Key Performance (SP) = mean of Individual and Group Recognition (IG) = mean of Database Decision Making (DM).

$$H_o: \mu_{CF} = \mu_{EI} = \mu_{PM} = \mu_{SP} = \mu_{IG} = \mu_{DM}$$

Table 4.4 shows the result of ANOVA. The significance value is 0.01 which is lower than 0.05. Therefore, there is a significant difference somewhere among the mean scores on the six variables. Therefore, the analysis rejected the null hypothesis and concluded not all the means are the same.

Table 4.4 One-way ANOVA

Mean

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.28	5.00	1.06	3.10	0.01
Within Groups	215.04	630.00	0.34		
Total	220.33	635.00			

4.6 Total Scale Scores

Based on the Continuous Improvement Matrix and Job Satisfaction Survey (JSS), the scores had been total up to measure the level of Continuous Improvement commitment and Job Satisfaction prior no items were overlapping. This method was done by summing all the scores from the items that make up each scale to give an overall score for scales. The total scale scores also help to compute the large number of items in the questionnaire and compressed to small number of variable that contribute significantly to the measurement. Both of these instruments were valid based on several previous studies (Sauer, 2009; Noorliza and Muhammad, 2006; Limon, 1993; Culp. 1992).

Before proceed with total scale scores, the JSS data consisted negative worded items as mentioned in chapter 3. This was to help prevent response bias (Pallant, 2005). For example, item 1 is worded in positive direction: “I feel I am being paid a fair amount for the work I do”. Item 2 however is worded in negative direction: “There is too little chance for promotion in my job”. The negative worded items had been reversed before

proceed to summing the scores. This was to ensure that all items are scored so that high score indicate high levels of optimism.

4.7 Reliability Analysis

Cronbach's alpha coefficient is been used in this study to verify the scales are reliable. The tested variables include customer focus, employee involvement, process management, supplier as a key performance, individual and group recognition, database decision making and Job Satisfaction items. Ideally the Cronbach alpha coefficient of a scale should be above 0.7 (Pallant. 2005).

In the Continuous Improvement questionnaire, questions numbered 1 to 7 were related to customer focus variable (seven items), questions 8 to 14 were related to employee involvement variable (seven items), questions 15 to 22 were related to process management variable (eight items), questions 23 to 29 were related supplier as a key performance variable (seven items), questions 30 to 36 were related to individual and group recognition variable (seven items), questions 37 to 39 were related to database decision making variable (three items). From the reliability test result, all the variables exceeded the recommended 0.7 Cronbach alpha value and therefore all variables were realible in this study. The result is summarised in Table 4.5.

Table 4.5: Reliability Test Result

	Number of Items	Cronbach's Alpha
Customer focus	7	0.857
Employee involvement	7	0.761
Process management	8	0.856
Supplier as a key performance	7	0.751
Individual and group recognition	7	0.825
Database decision making	3	0.838

	Number of Items	Cronbach's Alpha
Job satisfaction	36	0.890

4.8 Correlations Analysis

Correlation analysis is used to compute the strength and direction of the linear relationship between two variables (Pallant, 2005). For this study, bivariate Pearson product-moment coefficient is selected to test the correlation of the variables.

Pearson correlation coefficient is range from value -1 to +1. Basically, the higher absolute correlation value indicates the stronger relationship between two variables. The sign indicates whether it is a positive correlation or a negative correlation. A perfect correlation of -1 or +1 means that the variable can be determined exactly by other variable. While zero value of correlation indicates no relationship between two variables.

The correlation coefficients among six dimensions of Continuous Improvement, they all were significant correlated ($p < 0.01$). The correlation result is summarised in Table 4.6. The result shows the Continuous Improvement variables there were correlated to each other. The impact of

Continuous Improvement towards the Job Satisfaction is tested on next section of the report.

The weakest correlation was between Employee Involvement and Supplier as Key Performance. Supplier as key of performance is the understanding between a supplier and the customer of the quality standard of the product supplied. It would make sense to develop working relationship with supplier organisations that have also adopted the continuous improvement philosophy. A quality product cannot be made if the supplies are not of high quality (Culp, 1992). Employee involvement is depends on the policy and procedure of a company on helping employees to be involved in continuous learning programs (Limon, 1993). The low Pearson value among this two variables show that they are least correlated to each other. This is because most of respondents are from the executive level who did not direct deal with suppliers. Therefore, the relationship between suppliers and employees is weak.

In other way, Database Decision Making and Process Management have the highest correlation value. This indicates that there is strong relationship between this two variables. Database decision making reflects the extent to which decision are made based on data collected by means of basic statistical tools (Culp, 1992). In fact, change, modification or improvement of a process is required based on the causes of variation in the system by analysing the database.

Table 4.6: Correlation Among Continuous Improvement Dimensions

	CF	EI	PM	SP	IG	DM
CF	1.00					
EI	0.44	1.00				
PM	0.58	0.55	1.00			
SP	0.47	0.28	0.51	1.00		
IG	0.40	0.43	0.40	0.45	1.00	
DM	0.52	0.38	0.60	0.33	0.35	1.00

Notes
CF = Customer focus, EI = Employee involvement,
PM = Process management, SP = Supplier as a key performance,
IG = Individual and group recognition, DM = Database decision making

4.9 Chi-square Test

The Continuous Improvement was tested by using Chi-square (non-parametric technique). The chi-square test for independence is used to determine whether two categorical variables are related. Firstly the scores of continuous improvement were total up and computed the level of Continuous Improvement practices. The scores were range from minimum thirty nine points to maximum one hundred and ninety five points. The scores were divided into two groups which indicated the commitment to Continuous Improvement practice – with Continuous Improvement practice and without Continuous Improvement practice (Refer to Table 3.1).

The following step in this study was to explore the influence of Continuous Improvement Practices (with/without) on Job Satisfaction (low/moderate/high). The result is presented on Table 4.7.

In this study, among respondents who had low job satisfaction, 66.67 percent of them were from the organisations which did not practice continuous

improvement while 33.33 percent of them were from the organisations which were practicing continuous improvement. Among the moderate job satisfaction group, almost most of them (95.96 percent) were working in the organisations which were practicing Continuous Improvement. For those who had high job satisfaction, all of them (100 percent) were working in the organisations which were practicing Continuous Improvement. In overall, the organisations which practicing Continuous Improvement have higher job satisfaction employees compare to the organisations which did not practice Continuous Improvement. This result is supported by some previous studies (Sauer, 2009; Noorliza and Muhammad; 2006; Culp,1992). The Chi-square value is 21.64 with an associated significance level of 0.00. In this case the value of 0.00 is smaller than the alpha value of .05, therefore the result is significant. This means that the proportion of employees with high job satisfaction who worked in CI-practice organisations is significantly different from the proportion of employees with low job satisfaction who worked in non CI-practice organisations.

In overall, the result was as predicted and supported by various previous studies. The job satisfaction level shows significant high in the organisations which practicing the Continuous Improvement Practice. In other way, the job satisfaction level is low on the organisations that did not practice continuous improvement. Therefore, the Job Satisfaction is associated by the level of Continuous Improvement effort.

Table 4.7: Chi-square test

Job Satisfaction and Continuous Improvement Practices Crosstabulation

			CI Practices	
			Without CI	With CI
Job Satisfaction	Low	% within Job Satisfaction	66.67	33.33
	Moderate	% within Job Satisfaction	4.04	95.96
	High	% within Job Satisfaction	0.00	100.00
Total		% within Job Satisfaction	5.66	94.34

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.64	2.00	0.00
Likelihood Ratio	8.79	2.00	0.01
Linear-by-Linear Association	11.22	1.00	0.00
N of Valid Cases	106		

4.10 Mann-Whitney U Test

This technique is used to test for differences between two independent groups (organisations with Continuous Improvement practice and organisations without Continuous Improvement practice) on a continuous measure (Job Satisfaction). This test is the non-parametric alternative to the t-test for independent samples. The Mann-Whitney U Test actually compares medians. It converts the scores on the continuous variable to ranks, across the two groups. It then evaluates whether the ranks for the two groups differ significantly. As the scores are converted to ranks, the actual distribution of the scores does not matter.

The result is presented on Table 4.8. In the analysis, the Z value is –3.34 with a significance level of p = 0.00. The probability value (p) is less than or equal to 0.05, so the result is significant. There is statistically significant

difference in the Job Satisfaction scores of with Continuous Improvement practice and without Continuous Improvement practice.

Table 4.8: Mann-Whitney U Test

Test Statistics

	Job Satisfaction
Mann-Whitney U	195.00
Wilcoxon W	216.00
Z	-3.34
Asymp. Sig. (2-tailed)	0.00

Grouping Variable: Continuous Improvement

Hypothesis 1:

There is a positive impact between Continuous Improvement practices and job satisfaction.

Based on the chi-square test and Mann-Whitney U Test, the Job Satisfaction is significantly associated by the level of Continuous Improvement practice. Therefore the hypothesis 1 is accepted.

Besides that, the Continuous Improvement practice in the form of Customer Focus (M=3.72, SD=0.61), Employee Involvement (M=3.47, SD=0.52), Process Management (M=3.53, SD=0.59), Supplier as Key Performance (M=3.57, SD=0.49), Individual and Group Recognition (M=3.69, SD=0.51), and Database Decision Making (M=3.51, SD=0.74), the Customer Focus gives the biggest impact to the job satisfaction. This follows by Individual and Group Recognition and Supplier as Key Performance.