

JOB SATISFACTION: EMPIRICAL EVIDENCE FOR ALTERNATIVES TO JDI

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ABSTRACT

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INTRODUCTION

In recent times there has been a convergence of interest on the efforts by organizations to examine conditions that foster greater satisfaction with job. The basic reason for this renewed interest is the perception that broad even global, shifts in the internal structures and employment practices are inducing changes in the ties that bind employees to their job.

While the concern for employee satisfaction in Malaysia is high, empirical research on its correlates is insignificant. Most knowledge comes from journalistic accounts, individual experiences, opinions of scholars and corridor conversation. These are essentially descriptive pieces without much empirical base and with limited utility for the theory of knowledge.

Today's managers find it hard to ignore the issue of job satisfaction at a time when the demand of meaningful work is increasing. There are two main reasons why managers are concerned with job satisfaction. First, they have a moral responsibility to do what they can to provide their employees with a satisfying work environment. Second, they believe that the behaviour of satisfied workers will make positive contributions to the organization. Studies have shown that job satisfaction have a direct effect on turnover (Fishbein & Ajzen, 1975; Fishbein, 1980). Therefore the viable organization must achieve a minimum level of productivity and also provide a minimum level of job satisfaction for its members.

This is very much true especially in the manufacturing sector in Penang where the labour market is very tight. Many companies are having problems with high labour turnover and difficulty in hiring new employees. There is immense competition for the scarce resource that has resulted in an increased cost of labour. So companies are seeking ways to improve productivity and reduce turnover without having to hire more employees. This can only be done if the company can keep their existing employees satisfied. As the saying goes "a happy worker is a contented worker".

OBJECTIVE OF THE STUDY

The main intention of the study is to test whether the proposed method of measurement can be better utilized to measure job satisfaction among employees in the manufacturing sector as compared to the traditional method that is widely used.

LITERATURE REVIEW

Various researchers have defined the Job satisfaction construct differently. The term was brought to limelight by Hoppock (1935) who reviewed 32 studies on job satisfaction conducted prior to 1933 and observed that job satisfaction is a combination of psychological, physiological and environmental circumstances that cause a person to say, "I am satisfied with my job". Such a description indicates the variety of variables that influence job satisfaction but tell us nothing about

its nature. Locke (1969, 1976) defined job satisfaction as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences".

In simple terms, job satisfaction explains what makes people want to come to work. What makes them happy about their job or not to quit their job? Nash (1985) has extensively reviewed the nature of job satisfaction in the industrial world and found that job satisfaction is attributed not only to one but many factors and varies in its impact on individuals satisfaction with life because work varies in importance from individual to individual. He also found that people who take their job as prime interest experience high level of job satisfaction. Their job satisfaction will be further enhanced if they are doing work that is utilizing their skills. He also found that job satisfaction is an indicator of employees motivation to come to work and it changes with age and employment cycle. He also concluded that certain organizational characteristics influence job satisfaction, and one of the major factors is the intrinsic nature of the job itself. An individual who genuinely likes the content of the job will be more satisfied with the job. In terms of preferences, he said that industrial workers want job with high pay, high security, promotional opportunities, fewer hours of work and friendly supervision. Finally, he found that if it demands considerable effort to get a job (through education, experience or achievement), if one can make a lot of money at it, if one can not think of an alternative, then one should be highly satisfied with the job.

He also stated in his findings that factors that influence job satisfaction differ from men to women in terms of importance of ranks. Generally, men rank security first, followed by advancement, type of work, company, pay, co-worker, supervision, benefits, duration of work and then working condition. Whereas women rank type of work first, followed by company, security, co-workers, advancement, supervision, pay, working condition, duration of work and then benefits.

As there are various measures to measure job satisfaction and not all of them could be used at the same time, a choice had to be made. The process of making a choice is not simple but as an author put it

"It is not unusual for two or more equally good measures to have been developed for the same concept. For example, there are several different instruments for measuring the concept of job satisfaction. One of the most frequently used is the Job Descriptive Index (JDI) developed by Smith, Kendall and Hulin (1969). When more than one scale exists for any variable, it is better to use the measure that has a better reliability and validity and is most frequently used."

So for this study the Job Descriptive Index was chosen as the standard measure but at the same time another section was added to measure the importance of the various dimensions to the employees, this will be discussed later in the methodology section.

The Job Descriptive Index (JDI) (Smith, Kendall & Hulin, 1969) is the most widely used measure of job satisfaction in existence today. More than 50 percent of articles published in management or management related journals employed the JDI to measure job satisfaction. Most writers agreed with Vroom's (1964) judgement that "the Job Descriptive Index is without doubt the most carefully constructed measure of job satisfaction in existence today". The evidence can be summarized by three themes. First the JDI has been widely used in business and government (Blood, 1969; Hulin,

1968; O'Reilly & Roberts, 1973; Waters & Waters, 1969) as both a research tool and a diagnostic indicator. Second, a strong case has been built for construct validity, both in original source (Smith, Kendall & Hulin, 1969) as well as in numerous other publications that report correlation between JDI scales and other measures of job satisfaction (e.g., Dunham, Smith, & Blackburn, 1977). Third, the JDI dimensional structure seems stable across some occupational groupings (eg., Smith, Smith, & Rollo, 1975; Golembiewski and Yeager, 1978).

PROPOSED METHODOLOGY

The proposed methodology is formulated to borrow the concept of service quality measurement and apply them to the existing dimensions of job satisfaction as defined by the JDI.

Service quality is meeting needs and requirements and also how well the service level delivered matches customer's expectation (Levis & Booms, 1983). Service quality refers to a comparison of expectations with performance. Service quality is a customer's judgement and results from comparisons of their expectations of service with their perceptions of actual service delivered (Gronross, 1988). Perceived service quality is viewed as the degree and direction of discrepancy between consumer "perception and expectations" (Parasuraman et al, 1988). When expectations are exceeded, service is perceived to be of exceptional quality.

The above argument is also in line with two findings namely Porter & Lawler (1965) and Locke (1969, 1976). Porter and Lawler (1965) operationalized satisfaction as a discrepancy and defined it as the extent to which reward actually received meet or exceed the perceived equitable rewards. The greater the failure of actual rewards to meet or exceed equitable rewards the more dissatisfied an employee will be. While Locke (1969, 1976) defined job satisfaction as "an emotional reaction that results from the perception that one's job fulfils or allows the fulfilment of one's important job values congruent with one's needs".

RESEARCH OBJECTIVE OF THE STUDY

The crux of the study is built around the contention that each individual does not place the same level of importance to each facet of the JDI. Importance varies amongst individuals who have different needs, thus it is argued is that JDI has failed to take into consideration this factor when measuring job satisfaction. What the JDI measures is the perception of an individual about the facets of job satisfaction. So this study explored the possibility that *gap* (i.e.: the difference between perception and importance) or *weighted score* (i.e.: perception multiplied by importance) could be better used to measure job satisfaction.

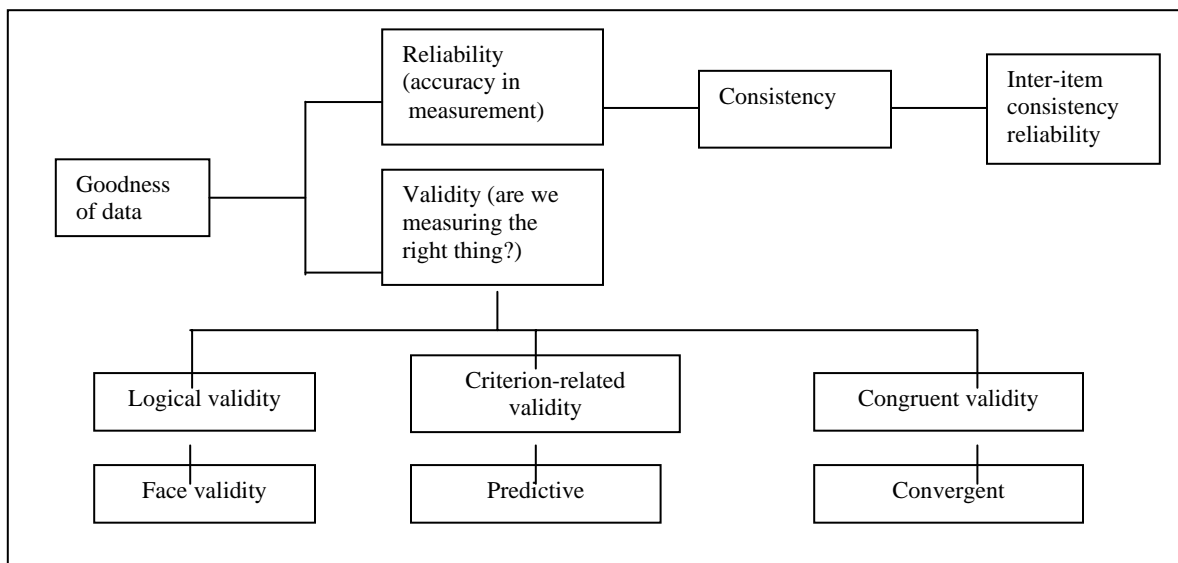
With the above argument what was done was to use two different sets of questionnaire. The first questionnaire uses the same dimensions as the JDI which will be hereinafter referred to as the traditional method and the second set of questionnaire (hereinafter referred to as the proposed method) also uses the same dimensions as the JDI but the responses were modified from Y, N and ? to be in the form of a Likert scale ranging from 1=Strongly Disagree to 5=Strongly Agree. The respondents were also asked to respond how important the various items on a Likert scale

ranging from 1=Not Important to 5=Very Important. By having the perception and importance attached to each item the gap can be computed by taking the difference between perception and the importance, while the other measure that is weighted score can also be obtained by multiplying the perception score with the importance score.

"At times, we may also have to adapt an established measure to suit the setting, for example, a scale used to measure job performance, job characteristics, or job satisfaction in the manufacturing industry may have to be modified slightly to suit a utility company or a health care organization. The work environment in each case is different and the wordings in the instrument may have to be adapted. However in doing this, we are tampering with an established scale, and it would be advisable to test for the adequacy of the validity and reliability once again"

In line with the above view, the framework for the research is as presented below.

Figure 1 - The Research Framework



The two main criteria for testing the goodness of measures are validity and reliability. Validity tests how well an instrument measures the particular concept it is supposed to measure. Reliability tests how consistently a measuring instrument measures whatever concept it is measuring. In other words, validity is concerned with whether we are measuring the right concept, and reliability is concerned with stability and consistency in measurement.

In order to test for the predictive validity of the new measure, another section on organizational commitment was added which has 15 items with questions ranging from how strong is the desire to remain a member of the particular organization, the willingness to exert high levels of effort on behalf of the organization and a definite belief in an acceptance of the values and goals of the organization.

Most research showed that organizational commitment and job satisfaction are positively correlated (Rusli, 1987; Richards, 1985; Williams & Hazer, 1986; DeCotiis & Summers, 1987). The direction of causality is less clear, with some suggesting satisfaction as an outcome of commitment (Bateman, and Strasser, 1984) while the majority view commitment as a time lagged consequence of satisfaction (Bluedorn, 1983; DeCotiis and Summers, 1987; Florskowski and Schuster, 1992).

POPULATION AND SAMPLE

The population for this study composed of all managers, supervisors and operators employed in the manufacturing sector in Penang (Bayan Lepas and Prai Free Trade Zone). A two layer sampling method was employed in selecting the respondents for this study.

In the first layer the companies that formed the respondents were selected using a simple random sampling method where the list provided by FMM was used as the population. Each company was assigned a number and random numbers were generated to select 30 companies to form the participants.

This study was done using two different set of questionnaires and for each set of questionnaire the target was to get about 50 managers, 100 supervisors and 200 operators to be the respondents. What was done was that 40 questionnaires were sent out to the personnel managers of the 30 companies selected with instructions on the breakdown of respondents required as 5 managers, 10 supervisors and 25 operators. The selection of the participants was left to the discretion of the personnel managers. The two set of questionnaire were arranged one after the other so that it will be evenly distributed.

INSTRUMENTS AND MEASUREMENTS

Job Satisfaction is measured using the JDI developed by Smith (1969). The JDI was chosen as it has been shown by extensive research to be reliable and a valid measure of job satisfaction. JDI was designed to measure satisfaction through 5 aspects of a job, the work itself, pay, promotion, supervision and co-workers. Respondents were asked to indicate whether a word or phrase describing a particular aspect of their job is applicable by answering a N (Not True) or Y (True) or ? (Unsure) beside the description. Scores for each job aspect were obtained by summing the assigned weight for each item across all items covering the particular aspect. The weights for the responses were:

"True"	=	3
"Not True"	=	0
"Unsure"	=	1

For the traditional method, the scores for each job aspect were obtained by summing the assigned weights for each item across all items covering the particular job aspect. The overall job satisfaction score was obtained by adding up all the 5 dimensions of job satisfaction.

For the proposed method, the original questionnaire was modified where each item asked about the agreement and also importance placed by the respondent. The gap score was computed by taking the difference between the agreement and the importance while the weighted score was obtained by multiplying the agreement and the importance answers.

Organizational commitment was assessed using 15 items taken from the Organizational Commitment Questionnaire. Out of the 15 items, 6 were negatively phrased to reduce response set bias. The OCQ is one of the most common and popular instruments for measuring organizational commitment. It has been found to consistently yield satisfactory internal and temporal stability, discriminant, convergent, and predictive validity (Mowday, et al. 1982). The 15 items were measured using a 5 item Likert scale with responses ranging from 1=Strongly Disagree to 5=Strongly Agree. The 15 items were summed to form the single measure of commitment.

Demographic variables were extracted by asking questions about the respondent's position, age, years' of experience, gender, marital status, ethnicity, educational level and their current salary.

METHODS OF ANALYSIS

Frequency distribution was used to describe the sample. Cronbach's alpha coefficient was established to determine inter-item consistency reliability of the various facets of the job satisfaction and also organizational commitment. The means and standard deviation of the various facets of job satisfaction, organizational commitment and demographic variables were also computed. Correlation between the 5 facets of job satisfaction and also between the facets and organizational commitment were also calculated using the Pearson's correlation coefficient.

The Cronbach's alpha coefficient for each facet of job satisfaction was compared between the traditional questionnaire and also the proposed way of measurement. This is to done to see whether there were differences in reliability between the two measurements.

The non-parametric test of Friedman's k-related sample test was used to test whether there are differences in the importance placed on each facet of the JDI. Finally regression analysis was done to see the predictive validity of the traditional measure and the proposed measure. The R^2 computed was compared to see which measurement yields a better result. This is to see if the predictive validity is good and can be used to predict a future behaviour.

DESCRIPTION OF THE SAMPLE

A total of 1200 questionnaires were sent out. Out of the 1200 questionnaires 600 were questionnaires using the traditional method while another 600 were using the proposed questionnaire. For the traditional questionnaire 129 were returned giving a response rate of 21.50%. As for the proposed questionnaire the number of returned questionnaires were slightly higher at 182 giving a response rate of 30.33%. Overall the response rate was at about 25.92%.

Comparison of Respondents Profile of the Two Questionnaires

A comparison of the respondent's profile between the two questionnaires showed that there was not much difference in the position of the respondents. There were more male respondents compared to female respondents in the proposed questionnaire whereas the proportion was somewhat equal for the traditional questionnaire. More married respondents responded to the proposed questionnaire while the majority of the respondents of the traditional questionnaire were single. In terms of ethnicity the proportions were quite similar except that for the traditional questionnaire there were no Indian respondents. In terms of highest educational level the profile was quite similar although there were more respondents with secondary education in the proposed questionnaire. For current salary the proportion was quite similar in all categories. The average age of the sample was slightly higher for the proposed questionnaire as compared to the traditional questionnaire. One significant difference was in the average experience, the average experience of the proposed questionnaire was 8.55 years with a standard deviation of 0.95 years while the traditional questionnaire had an average experience of 5.45 years with a standard deviation of 4.66 years. This goes to show that the respondents of the traditional questionnaire had very varying number of years of experience.

Goodness of Measure

For the proposed method the Cronbach alpha ranged from 0.65 to 0.86 for the perception items, 0.49 to 0.82 for the importance items, 0.51 to 0.81 for the gap items and 0.73 to 0.84 for the weighted score items. Thus the internal consistency reliability of the measures used in this study can be considered to be good. For the traditional method the alpha's ranged from 0.74 for the facet of work to about 0.91 for the facet of supervision.

Table 1 - Cronbach Alpha for the Facets of JDI (Proposed Method)

JDI Facets	Total number of items	Number of items deleted	Cronbach Alpha			
			A ^a	I ^b	G ^c	X ^d
Pay	9	1	0.6483	0.7070	0.5122	0.7676
Promotion	9	1	0.7206	0.4943	0.5925	0.7281
Work	18	1	0.7421	0.5536	0.6364	0.7539
Supervision	18	1	0.8612	0.7311	0.6833	0.8366
Co-workers	18	1	0.8280	0.8254	0.8126	0.8391

a. Perception b. Importance c. Gap d. Weighted measure

For the organizational commitment questionnaire, one item each from the traditional method as well as the proposed method was deleted from the index computation. The deletion was done based on the premise that by dropping the item concerned, the overall reliability of the measure could be increased. The Cronbach alpha was 0.82 for the traditional method and for the proposed method it was a very high 0.90. This attests to the inter-item consistency reliability for the organizational commitment questionnaire is very good.

The correlation between total satisfaction (as measured by combining the different facets together) and organizational commitment (as measured by combining the items in the questionnaire) and also between total satisfaction and total satisfaction (as measured by a single item at the end of the questionnaire) is presented in Table 4.

Table 2 - Cronbach Alphas for the Facets of JDI (Traditional Method)

JDI Facets	Total number of items	Number of items deleted	Cronbach Alpha
Pay	9	1	0.8146
Promotion	9	1	0.8336
Work	18	1	0.7383
Supervision	18	1	0.9133
Co-workers	18	1	0.8505

Table 3 - Cronbach Alphas for the Organizational Commitment Questionnaire

Organizational Commitment	Total number of items	Number of items deleted	Cronbach Alpha
Traditional Method	15	1	0.8190
Proposed Method	15	1	0.9003

The correlation between overall job satisfaction (index) and organizational commitment shows that all are significantly correlated at $p=0.01$ where the coefficient was $r=0.73$ for the traditional method, $r=0.47$ for the gap analysis and 0.53 for the weighted measure. The correlation between the overall job satisfaction index and the single item measure of overall satisfaction was $r=0.54$ for the traditional method, while the gap analysis showed an $r=0.31$ and the weighted measure showed an $r=0.73$.

Table 4 - Correlation between Overall Satisfaction and Organizational Commitment

	Commitment	Overall Satisfaction (1 item)
Total Satisfaction (Gap)	0.4690**	0.3151*
Total Satisfaction (Weighted Score)	0.5349**	0.7321**
Total Satisfaction (Traditional)	0.7345**	0.5461**

* significant at $p=0.05$

** significant at $p=0.01$

Test of Differences

The Friedman Two-Way ANOVA test was used to test whether there were differences between the importance placed on each facet of the JDI while the paired t-test analysis was used to test whether there were significant differences between the perception and the importance placed on each facet of the JDI.

Table 5 - Friedman Two-Way ANOVA Result

Friedman Two-Way ANOVA				
Mean Rank	Variable			
1.56	PAY Importance			
3.01	COWORK Importance			
3.26	PROMOTION Importance			
3.37	SUPERVISION Importance			
3.80	WORK Importance			
Cases	Chi-Square	D.F.	Significance	
112	130.5143	4	.0000	

From the Friedman Two-Way ANOVA test (Table 5) results it is obvious that there is a significant difference between the importance placed on the different facets of JDI. Thus in terms of importance, work is the most important followed by supervision, promotion, co-worker and pay in the descending order of importance.

The paired t-test results presented in Table 6 shows that there is a difference between the perception and importance placed on each facet of the JDI. Perception was higher in importance for the facets of pay, supervision and co-workers whereas importance was higher than perception for the facets of promotion and work.

Table 6 - Paired t-test Result

Paired T-Test Between Perception and Importance of	Mean Paired Difference	Standard Deviation	t value	p value
Pay	0.5521	0.628	10.55	0.000
Promotion	-0.3442	0.686	-6.23	0.000
Supervision	0.1115	0.480	2.88	0.005
Work	-0.2678	0.430	-7.69	0.000
Co-workers	0.1499	0.544	3.33	0.001

Comparison of Coefficients of Determination (R^2)

The multiple regression coefficients between commitment as the dependent variable and JDI facets as the independent variables are presented in Table 7. For the gap analysis the regression model is significant at $p=0.01$ and the JDI facets can explain 54.92% variation in organizational commitment. The weighted measure on the other hand was also significant at $p=0.01$, but it could only help to explain 35.51% variation in organizational commitment. The traditional method was also significant at $p=0.01$ and can explain about 54.69% variations in organizational commitment.

Table 7 - Multiple Regression Coefficients

Dependent	Independent					R ²	Sig. F
	Pay	Promotion	Work	Supervision	Co-worker		
Commitment (Gap)	-0.0089 0.24	0.5525 0.004**	-0.0119 0.926	0.6345 0.004**	-0.4499 0.004**	0.5492	0.000
Commitment (Weighted)	0.0131 0.40	0.0872 0.004**	0.0497 0.067	0.0441 0.062	-0.0395 0.182	0.3551	0.000
Commitment (Traditional)	0.204 0.004*	0.2627 0.004**	-0.0078 0.930	0.1022 0.004**	0.1097 0.114	0.5469	0.000

** significant at $p=0.01$

A further analysis of importance broken down by gender was done to see if there were differences in the ranking of importance of the difference facets of JDI between males and females (refer Tables 8 and 9). The male respondents ranked in descending order of importance work followed by promotion, supervision, co-worker and pay. The female on the other hand ranked work as most important followed by supervision, promotion, co-worker and pay as the least important.

Table 8-Importance of JDI Facets(Male)

Friedman Two-Way ANOVA

Mean Rank	Variable
2.91	COWORK Importance
1.50	PAY Importance
3.33	PROMOTION Importance
3.24	SUPERVISION Importance
4.01	WORK Importance

Cases	Chi-Square	D.F.	Significance
70	96.6857	4	.0000

Table 9- Importance of JDI Facets(Femal)

Friedman Two-Way ANOVA

Mean Rank	Variable
3.19	COWORK Importance
1.67	PAY Importance
3.29	PROMOTION Importance
3.43	SUPERVISION Importance
3.45	WORK Importance

Cases	Chi Square	D.F.	Significance
42	38.2286	4	.0000

DISCUSSION AND CONCLUSIONS

Is the Proposed Measurement Useful?

This study sought to prove that the individuals do not place the same degree of importance for all the facets of JDI. Instead, each individual will have his or her own needs and will rank the importance with regards to his or her needs. Thus what we found from the analysis was that there is indeed a difference in the importance placed on each facet of the JDI. Work was ranked most important followed by supervision and promotion. This supports the findings of Hackman and Lawler (1971), Seybolt (1976). Co-workers were ranked as average or neutral which is supported by the study done by London and Klimoske (1975) who found that job satisfaction with co-workers to be greatest with job of optimal complexity and lower with low and high complexity. Pay was ranked the least important, which is supported by the findings of McCloskey (1974), which found that salary by itself was not an important factor to keep someone on the job.

A further analysis ventured to see if there were significant differences in the ranking of importance of the JDI facets between male and female respondents. The results showed that the ranking of importance differs between by gender. The males ranked work as most important followed by promotion, supervision, co-worker and pay as the least important. The females on the other hand also ranked work as the most important but ranked supervision as second followed by promotion, co-worker and pay as least important. These support the findings of Nash (1985) who found that the ranking of importance differs between male and female workers although the exact ranking was not the same as this study.

Is the Proposed Measurement Reliable?

To see if the measure is reliable the most common method is to use the inter-item consistency reliability measured by Cronbach's alpha. For the gap analysis only the facet of pay the alpha was a little bit low whereas for all the other facets the alpha was quite reasonable.

For the weighted measure, the alpha's were in the range of 0.73 to 0.84, which can be considered as high. When compared to the traditional method the alpha was comparable in every facet although the alpha's of the traditional method was a little bit higher. This can be attributed to the fact that for the proposed method, the questionnaire was a little bit lengthy and slightly more difficult as compared to the traditional method where it is straightforward and simple.

When compared to the original instruments reliability measure that was given as exceeding 0.8 for each facet, the proposed method can be considered as reliable.

Is the Proposed Measurement Valid?

Validity was measured using the predictive validity of the measure to predict organizational commitment. From the result it was found that by using the gap analysis the R^2 was 0.5492 i.e.; the 5 facets can explain 54.92% variation in organizational commitment. For the weighted measure the R^2 was 0.3551; the 5 facets can explain 35.51% variation in organizational commitment. The F values were significant at $p=0.01$ which shows that the model can be used to predict organizational commitment.

Compared to the traditional method that yielded a R^2 of 0.5469 i.e., the 5 facets can explain 54.69% variation in organizational commitment; the gap analysis was slightly better in terms of predictive validity than the traditional method. While the weighted measure was slightly lower in its predictive validity.

Another form of validity, convergent validity is established when scores of the test and scores on some other test or criterion are correlated. If the coefficient is high the test has a good convergent validity. The overall job satisfaction was computed by combining the scores of the different facets of JDI and correlating it with a single score measure of overall satisfaction. The correlation coefficients were 0.31 for gap analysis, 0.73 for weighted measure analysis and 0.54 for the traditional method. The weighted measure shows a high coefficient and this affirms that the convergent validity is high.

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