



UNIVERSITI PUTRA MALAYSIA

**JOB SATISFACTION OF ENGINEERS IN
ENGINEERING CONSULTANT FIRMS**

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IN
ENGINEERING CONSULTANT FIRMS**

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ABSTRACT

The research was carried out to determine the level of job satisfaction among engineers working in engineering consultant firms in Klang Valley, Selangor and the factors that affect the level of job satisfaction. Ten engineering consultant firms were selected for this research. The above companies were operating engineering consultancy services in the fields of Civil, Structural, Mechanical and Electrical. The size of the companies selected were varies from small to medium size. The small size company would typically have about five engineers while the medium size company would normally have about 15 to 20 engineers.

The Job Descriptive Index (JDI) questionnaire has been used in this research where it consists of 72 statements from 5 facets of job satisfaction. There were 120 questionnaire sheets distributed to various engineering consultants firms. Out of this, only 51 engineers were responded to the questionnaires.

From the data collected, majority (78.4 %) of the respondents were moderately satisfied with their job and 3.9 % of the respondents were experiencing highly satisfied with their job situation. However, only 17.7 % of the respondents have expressed their dissatisfaction. Hence, it is found that majority of the respondents were moderately satisfied with their job as a whole without differentiating their demographic data.

The results of hypothesis testing on relationship between job satisfaction and each demographic variable have concluded that all demographic variables do not have any relationship with the job satisfaction of the engineers.

The main purpose of this behavioural science study is to aid management in the understanding of behaviour of the engineers. This will help the management to adapt policies and methods of implementations to the realities of engineers nature and needs. By adapting this policies and necessary steps toward the engineers, the company would make engineers more satisfied with the job and thus will minimise the intention of engineers to leave the organisation. This will save company's resources and time for recruiting new engineers.

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CHAPTER 1 - INTRODUCTION

1.1 GENERAL ECONOMIC SITUATION

In a market economy where commercial activities are open to the market forces, labour seems to be one of the most critical factor that will determine the present and the future direction of a country's economic growth. In Malaysia, we have been experiencing a sustained robust economy with Gross Domestic Product (GDP) growth rate averaging more than 8 % since 1988.

The prevailing buoyant economy had resulted in the generation of a lot of business opportunities to both local and foreign investors. Consequently, a lot of new employment opportunities have been created that lead the unemployment rate to fall to a very low level by any international standard. According to the economic report for the Seventh Malaysia Plan (1996 - 2000), the Malaysia unemployment rate in 1995 was 2.8 % compared with 5.1 % in 1990. The rate is expected to remain at 2.8 % until the year 2000 which represents a state of full



employment for all Malaysian workforce totalling around 8.1 and 9.3 millions for 1995 and 2000 respectively.

Due to the continuous robust economy, most organisations in both the public and private sectors are experiencing acute shortage of labour. Besides the benefits that the general public are able to enjoy better standard of living from the booming economy, employers are experiencing some hard times in recruiting new staff to meet the manpower requirements for the increasing workloads.

The imbalance caused by demand for manpower exceeding supply has generated a scenario of perfect competition in the labour marketplace that is more favourable to the employees. This phenomenon seemed to be inevitable and has exerted greater pressure towards a higher cost of labour. Industries competing for skilled and semi-skilled labour, had to offer better wages and other remuneration in order to attract more qualified workforce.

The tight labour market conditions pose greater challenges to the human resource management (HRM) in any organisations, particularly due to the upward pressure on wages. Retention of employees is becoming a more important role for HRM. Although various alternatives are available to overcome the manpower shortage in short to medium term perspective, the more rational strategy for long term solution would be have to be studied further.

In recent human resource study conducted by Watson Wyatt (Malaysia) Sdn Bhd, its 1997 Malaysian Compensation Report revealed a worrying trend - that Malaysian employees had negligibly increase their productivity in comparison with the rise in their pay. Yet employee turnover remains high,

reflecting the shortage of well-trained and competent employees in many organisations. There seems to be an urgent need for organisations to introduce some innovation in their employee retention policy.

1.2 OVERVIEW OF CONSTRUCTION INDUSTRY

The growth rate of construction industry in Malaysia for the last five years has an average of 14 %. The exceptionally high rate is primarily contributed by the 1998 Commonwealth Games to be held in Kuala Lumpur. In 1992 Malaysia has been officially announced to host the second largest games in the world. Since then, many projects have evolved due to direct and indirectly to the games. Projects which are directly related to the games are the National Sport Complexes and its facilities in Bukit Jalil, Kuala Lumpur. The projects which are indirectly related to the games are Kuala Lumpur International Airport in Sepang, light urban railway system (LRT), highways and other commercials, residential and industrials.

These projects have mandatory completion datelines and as such they have made the parties who are involved in the projects an arduous time. Time is the essence of these projects and as such it makes the operation management become more critical and important to the success of on-time project completion.

When the government or private developers decide to develop a piece of land, they must do project evaluation, design and management. These tasks are normally handled by a team of professionals. The professional team may comprise architect, civil & structural engineers, mechanical & electrical

engineers and quantity surveyor. Some mega projects require project management consultant to handle the huge management functions in the construction industry. Other than mega project, the architect is normally capable to handle the project management function.

The developers may appoint these consultants to do the design and management of the projects.

1.2.1 Roles of Consultants

Architect

The architect provides architectural design and project management. Architectural design consists of size of floor, number of storeys, height, design of exterior facade and interior finishes. The architectural design is transpired into drawings and specification. The architect is responsible to submit to local authority for approval.

Civil & Structural Engineers

The civil & structural engineers provide the complete range of civil & structural professional services through all stages of development of engineering projects. These services include :

- preliminary investigations
- engineering feasibility studies
- detailed engineering designs

- contract documentation
- contract administration and supervision
- project costing, budgeting and expenditure control

Civil engineering includes earthwork, road, drain, sewerage and water supply for projects such as highway, expressways, railways, bridges, residential development, reclamation, coastal and marine engineering.

Structural engineering includes foundation, building frame, beam, floor, column (pillar), liftcore and staircase for projects such as residential development, industrial building and complexes, bridges, etc. The Civil & Structural engineer is also required to submit the design to the local authority for approval.

Mechanical & Electrical Engineers

The mechanical & electrical engineers provide professional services in its related discipline. Mechanical engineering includes air-conditioning system, lift, escalator, internal sewerage and water supply. Electrical engineering includes lighting & power supply, telephone system, MATV, etc.

Quantity Surveyor

The quantity surveyor provides estimated cost of construction, measuring quantity of construction materials, preparing tender document and tender evaluation report.

1.2.2 Design and Construction Process

The process begin with the architect discussing with the client regarding the requirements and needs for the proposed project. The requirements are primarily the size of the building, number of storeys, height, exterior facade design and interior finishes. After the requirements have been agreed upon, the architect shall proceed with designing the proposed project. The architectural design is translated into drawings and specifications. The completed drawings and specifications shall be forwarded to the C & S and M & E engineers and quantity surveyor.

Based on the architectural design, the C & S and M & E engineers shall in turn produce their designs into drawings and specifications. Based on the architectural and engineering drawings and specifications, the quantity surveyor shall in turn measure quantity of construction material and finally prepare tender document.

Tender will be called from either pre-selected contractors or open tender. The successful tenderer will be awarded based on its tender sum and track record. The successful contractor will be given site possession and construction will assume

During construction stage, the consultants will monitor the progress of the work made by the contractor. After works have been completed to the consultants' satisfactory, then the contractor will hand over the completed building to the client.

1.3 STATEMENTS OF PROBLEM

The engineering consultancy services in Malaysia play a major role within the construction sector in terms of contribution of highly technical expertise to the industry. As engineering consultancy business depends on highly skilled engineers, engineers scarcity has become an increasing problem in the construction booming.

The demand for engineers in the engineering consultancy industry continue to rise steeply. The engineer shortage problem deepened with the unemployment rate as estimated by the Manpower Department Malaysia, dipped to 2.8 % in 1995 compared with 5.1 % in 1990. The rate is expected to remain at 2.8 % for the next three years..

The engineering consultancy business can no longer afford to pinch staffs from other companies, as this will aggravate the cost of hiring engineers. Pinching staffs from other companies may be a quick way of solving the problems of engineer shortage. In the long term, the industry will face consequence of escalating cost of engineers and the employment market would be in the hand of employees.

In addition, industries offering non-attractive salaries or remuneration packages may also lead to job hopping by existing engineers. This situation and turnover of engineers occur in tandem. Companies experience monetary loss in term of high training cost due to turnover of engineers. This is why the companies prefer to gain engineers' loyalty to the company to cut down training cost.

Organisations need to recruit new engineers and secure existing engineers and need to find ways and means to improve their employment terms and conditions. Efforts to increase productivity are often hampered by problems related to turnover of skilled engineers. There is a needs to constantly train new engineers, restrain existing engineers in present jobs, to upgrade their skills, improve efficiency and increase opportunities for future advancement within the engineering consultancy industry.

1.4 OBJECTIVES OF RESEARCH

The objectives of this research are as follows:-

- To study the level of job satisfaction of engineers in the engineering consultant firms.
- To identify factors influencing the level of job satisfaction of engineers in the engineering consultant firms.

1.5 IMPORTANCE OF RESEARCH

With increasing shortage of engineers in the engineering consultancy practice, company could overcome or minimise the problem if they analyse the cause and seek remedial steps to overcome them.

This research is expected to serve considerable information and findings relating to engineers' job satisfaction. This will benefit the employers to increase job satisfaction among engineers and thus enhance the productivity and lower

turnover intention. Also, necessary steps can be taken to attract engineers and retain existing engineers.

This research is also expected to make contributions to the knowledge in engineers' attitudinal behaviour especially job satisfaction, organisational commitment and turnover intentions. This knowledge is vital to the employers in an afford to minimise the cost of engineers' turnover and poor productivity. This is important to the employers to be able to formulate correct strategic solution in order to create a climate of mutual respect, opportunity, challenge, trust, and security in the organisations.

CHAPTER 2 - LITERATURE REVIEW

2.1 DEFINITION OF JOB SATISFACTION

Job satisfaction is a set of favourable and unfavourable feelings and emotions with which employees view their work. According to Lawler (1973) basically job satisfaction is determined by the discrepancy between what individuals expect to get out of their job and what the job actually offers. For example, if an engineer expects to be promoted in one year then is not, the engineer will be dissatisfied.

Vroom (1967) in his path-goal theory of motivation, said that the causes of job satisfaction and job performance are different. The job satisfaction is affected by the amount of rewards (extrinsic and intrinsic rewards) an employee received from doing a particular job and the job performance is affected by the basic attainment of rewards.

At the same time, the job satisfaction had some relationship with performance, in which the rewards from the good performance in job will lead to higher job satisfaction in terms of motivation theory.

In a research done by Hackerman (1971), he found that the important factors of job satisfaction are job characteristics such as responsibility, task difficulty, skill variety, autonomy, opportunity for new learning and opportunity to use valued ability.

2.2 MASLOW'S HIERARCHY OF NEEDS

Maslow postulated a need hierarchy, where individuals have five basic categories of needs. The need system is arranged in predetermined levels from a lower order to a higher order. These needs account for much or most of human behaviours, but not all of it.

Most behaviours, either deliberately or inadvertently, is driven by the force to satisfy more than one need. The need in a hierarchical order are :

- (1) Physiological needs,
- (2) Safety and security needs,
- (3) Social and belonging needs,
- (4) Esteem and status needs,
- (5) Self-actualisation and fulfilment needs.

An individual will move up the hierarchy in a systematic manner, where only after the lower order needs are satisfied is he capable of being concerned with fulfilling higher order needs. In a job situation, the theory would predict that only after the lower order needs for security and pay have been satisfied will the employee seek satisfaction and achievement from the work itself.

Maslow's need-hierarchy model essentially says that people have needs they wish to satisfy and that gratified needs are not as strongly motivating as unmet needs. Employees are more enthusiastically motivated by what they are currently seeking than by receiving more of what they already have. A fully satisfied need will not be a strong motivator.

Interpreted in this way, the Maslow hierarchy of needs has had a powerful impact on contemporary managers, offering some useful ideas for helping managers think about motivating their employees. As a result of widespread familiarity with the model, today's managers should be more able to :

- Identify and accept employee needs
- Recognise that needs may differ among employees
- Offer satisfaction for the particular needs currently unmet
- Realise that giving more of the same reward (especially those which satisfy lower order needs) may have a diminishing impact on motivation. These are significant contributions indeed.

Despite these benefits, the Maslow model has many limitations, and it has been sharply criticised. As a philosophical framework, it has been difficult to study and has not been fully verified. Research has not supported the presence of all five need levels as unique, nor has the five-step progression from lowest to highest need levels been established. There is, however, some evidence that unless the two lower-order needs (physical and security) are basically satisfied, employees will not be greatly concerned with higher-order needs. The evidence for a more limited number of need level is consistent with the next model to be discussed.

2.3 HERZBERG'S TWO FACTOR MODEL

This model was proposed following a study conducted by Frederick Herzberg on engineers and accountants in Pittsburgh area. He asked his

respondents to think of a time when they felt especially good about their jobs and a time when they felt especially bad about their jobs. He also asked them to describe the conditions that led to those feelings. Herzberg found that employees named different types of conditions for good and bad feelings. That is, if a feeling of achievement led to a good feeling, the lack of achievement was rarely given as cause for bad feelings. Instead, some other factors such as company policy was given as a cause of bad feelings.

It is also known as the motivator-hygiene theory. In contrast with the five-factor theory of Maslow, Herzberg proposes that all individuals have two basic sets of needs, hygiene needs and motivator needs.

The hygiene needs are basically factors for maintenance. They relate to the physical and psychological environment in which the work is done. In a work setting, hygiene factors would include such things as pay, supervisors, co-workers, general working conditions and company policy.

Motivator needs relate to some innate characteristics of individuals that requires them to seek challenge, stimulation and autonomy. These needs are satisfied by factors such as responsible work, independence of action and recognition for the accomplishment of tasks.

When hygiene factors are inadequate, they will lead to job dissatisfaction but when adequate, do not lead to job satisfaction. Hence, hygiene or extrinsic factors are also known as dissatisfier as serve primarily to prevent job dissatisfaction and affect dissatisfaction.

When motivator factors are present in the working situation, they will lead to satisfaction. However, the absence of these factors does not lead to named 'satisfier' where they are effective in motivating the individual to superior performance and effort and influence satisfaction.

Herzberg's theory argues that job satisfaction and job dissatisfaction are not two opposite extremes of the same continuum, but are separate dimensions. It is influenced by different factors in the work situation. Satisfaction depends on motivators while dissatisfaction is the result of hygiene factors.

Increasing amounts of hygiene factors will bring a person from a state of dissatisfaction to a neutral point. Increasing the motivator factors will bring a person from a neutral point to a state of satisfaction.

Two-factor theory came under attack almost immediately on methodological grounds. The major controversy was that since the data were gathered in face-to-face interviews, possibly the respondents were acting defensively when they responded. Because of this potential confounding factor, numerous researches have tried to replicate Herzberg findings using methods other than face-to-face interviews. In most of these cases, they did not find the same results as Herzberg.

As a whole, the development of Herzberg's theory helps illustrate many of the difficulties involved in the advancement of new theories of work motivation. It is hoped that one will learn to be somewhat discriminating and cautious in the adoption of new theoretical ideas for application in real organisational settings.

2.4 CONSEQUENCES OF JOB SATISFACTION

Level of job satisfaction will affect employee turnover, absenteeism and performance. Employees are more likely to quit their job if they experienced lower level of job satisfaction. However, this is not the only factor that affect employee turnover, other factors like higher salary, job vacancies availability in other place, geographical constraints, family responsibility and specialised skills needed in a particular job would also affect the employee turnover.

Employee absenteeism is the obvious consequences for those who experienced lower level of job satisfaction or unsatisfied with their job. According to Arnold and Feldman employee absenteeism was phenomenal especially when absent are without financial penalty by an organisation.

Even it is natural that satisfaction with job would lead to higher productivity and higher quality of work, but research done by Western researches does not support this statement. Researchers like Locke and Porter and Lawler found that the relationship between job satisfaction and performance is to view the second as a cause of the first rather than vice-versa. According to them the best employee with the best performance would receive more intrinsic rewards (like feeling of accomplishment) and more extrinsic rewards (like more promotion chances). The more the intrinsic and extrinsic rewards for an employee it would lead to higher level of satisfaction towards his job. Locke and Porter and Lawler found that the job satisfaction and performance relationship is

weak because employee performance is also affected by employee own abilities and condition of work environment as well.

What about job dissatisfaction ? One apparently self-evident result of job satisfaction is the likelihood that the individual will exhibit withdrawal behaviour. Withdrawal behaviour could be either temporarily, by absenting himself for a short period of time or permanently by voluntarily leaving the organisation.

Employees who are dissatisfied with their job reveal thoughts about quitting and intentions to do so. A research of the relationship between job satisfaction and absence have concluded that stronger case of a relationship between job satisfaction and absenteeism emerges than previous research (Scott and Taylor).

2.5 SOURCES OF JOB SATISFACTION

In this study, five most frequently studied sources of job satisfaction will be discussed, namely *present job, co-worker, supervision, income and promotion*.

2.5.1 Present job

Work itself plays a major role in determining an employee job satisfaction. Generally, an employee prefers job which are challenging, variety and have control over work methods and work pace. Employees tends to experience higher level of job satisfaction if the criteria which were mentioned above (challenging, variety, have control over work methods and work pace) were found in their job.

2.5.2 Co-worker

High and Daniel said that co-worker usually serves as a social support system for employees, people often use their co-worker as a sound board for their problems or as a source of comfort. In addition, employee likes to have conversation with each other as they work and having friendly and co-operative co-worker in an organisation.

2.5.3 Supervision

Supervision is the manner of providing a job environment that encourages employee accomplishment. The objectives of supervision are to oversee personnel, achieve good performance, maintain employee morale and motivation, minimise redundancies, communicate company policies and resolve. Supervisor who practised a supportive personal interest in them contribute to their employee satisfaction. According to Locke, the employee participation in decision making would lead to higher level of job satisfaction for an employee. Employee who participates in decisions making would affect their job display experience a much higher level of satisfaction with their supervisor.

2.5.4 Income

Pay is the direct financial compensation that an employee receives from the organisation where he works for. It consists of wages, salaries, bonuses and commissions. Pay plays an important role in determining an employee job satisfaction. It is instrumental in fulfilling so many human needs from basic needs like food, shelter and clothing to other needs like entertainment as well as

leisure interest outside the work. At the same time, pay could serve as a symbol of achievement, sources of recognition and social status.

2.5.5 Promotion

Promotion will lead to higher level of job satisfaction, where it could lead an employee to higher level in an organisation with more challenging work and commendable higher salary.