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THE RELATIONSHIP BETWEEN FIT AND JOB PERFORMANCE AND JOB

SATISFACTION AMONG ENGINEERS AT TELEKOM MALAYSIA

A Project

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

in

Interdisciplinary Studies

by

Bashirah Kamaludin

March 1999

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March 1999

Approved by:

Kenneth Shultz, Chair, Psychology

Margaret Cooney, Rehabilitation Counseling

Steve Levy, Management

3/8/99
Date

ABSTRACT

Occupational theory states that when a person is pursuing a career that is congruent to the organization's current needs and to the person's work interest and values, a good fit exists that enables the individual to have enhanced job performance and satisfaction. This research investigated the relationship of Person-Organization (P-O) fit and Person-Job (P-J) fit level to job performance and job satisfaction. The (P-O) fit was operationalized using the big-five personality constructs and the recruitment procedure, whereas the (P-J) fit was operationalized using career interests and work values that are congruent to job characteristic.

One hundred and six (106) participants, 29 women and 77 men, completed the 16PF personality test (Cattell, 1945), the COPS-P work interest test, the COPES work values test (Knapp, 1967), and the Job Descriptive Index, job satisfaction instrument (Smith, Kendall & Halin, 1969). The participants were rated independently on various performance dimensions by their respective supervisors and peers/subordinates. P-O fit [the personality characteristics (Self-control, Extraversion, and Independence) and the Recruitment procedure (aptitude test,

interview, extra-curricular)] was found to positively

correlate to job performance. Results of the correlation

of P-J fit [the work interest and work values congruent to

job characteristic] to job performance and job satisfaction

were more variable. Implications of the findings are

discussed.

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CHAPTER ONE

Problem Statement

An organization's performance consists of individual

performance. Generally, the better the individual performs

the higher the company's productivity. From this basis,

organizations propose and develop approaches and methods to

ensure individual productivity. For Telekom Malaysia, to

maximize productivity, the company has spent millions of

dollars developing methods of recruiting, selecting, and

training in order to ensure that the most competent

employees are hired. However the results seem to be mixed.

Many who are believed to be the best candidates, and have

been selected, hired, and promoted, do not perform as

expected or they leave the company. This was a serious

problem that occurred in the engineers' group, which

constitutes the major employee group in the company.

In Telekom Malaysia, the engineers are the key

employees that determine the company's productivity and

efficiency. To increase their productivity and to overcome

the turnover problem, Telekom Malaysia has developed a new

recruitment strategy. Ten million dollars has been spent

each year since 1990 to sponsor outstanding students and

employees to advance knowledge in the field of engineering.

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They are considered a select group who has also been trained in many other skills such as, leadership, motivation, management skills, time management, and interpersonal skills. Those who have graduated are recruited as engineers and, to avoid turnover, they are bonded to work for 6-12 year.

Looking at their academic achievement, it shows that most of these engineers are capable of handling their work. Other than knowledge and skills, individual performance is also determined by other factors such as how well they fit within the organization. According to fit theory, the performance of an individual is dependent upon the fit between the person and the organization, or the environment, or the job. A misfit may lead to low performance and may also result in dissatisfaction towards the job. The theory of Person-organization (P-O) fit emphasizes that if a person is congruent with the organization, either complementarily or supplementary, the person's job performance and job satisfaction tend to be high. The theory of occupation states that when a person is pursuing a career that is congruent to his or her work interest and work values, person-job (P-J) fit exists and this then leads to higher job performance and job

satisfaction. The employment fit theory states that fit is one of the important determinants of job performance and job satisfaction.

Therefore, P-O fit and P-J fit were measured for a group of engineers within Telekom Malaysia to assess the both fit relationship to job performance and job satisfaction. In doing so, it was hoped that a similar finding as stated by the theory of fit would be found under a cross cultural situation. P-O and P-J fit would play the same role, predictors to job performance and job satisfaction in a different cultural organization, Telekom Malaysia.

Literature Review

Several Approaches to Fit in Organizations

Fit refers to the degree of similarity or

compatibility between individual and situational

characteristics. Fit is determined by examining the

relationship between person and situation components as

measured on the same conceptual dimension (Livingstone &

Nelson, 1997). There are several concepts provided in the

literature to explain employment "fit" or "suitability" or

"match" or "congruence". In earlier research and theories,

employment fit was explained by the level of congruence

between the person and the environment where he or she

works, which is called person-environment (P-E) fit (e.g.,

Aronoff & Wilson, 1985; Kodge & Ferris, 1992; Ostroff,

1993; Pervin, 1968; and Schneider, 1978). During that

time, there were also studies on the congruence between the

person and vocation (P-V) to measure fit (e.g., Holland,

1977;1985; and Super, 1953). Studies on fit were also

conducted to explain the congruence between the person and

the job (P-J) fit (e.g., Blau, 1987; Bartol & Martin, 1988;

Edward, 1991; and O'Reilly, Chatman, & Caldwell, 1991).

Recently, employment fit is believed to be measured

better by the congruence between the person and the

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organization, (P-O) fit (e.g., Chatman, 1989; Kristof, 1996; O'Reilly & Chatman 1986; and O'Reilly, 1991). In today's organization, the benefit of employing people who fit to the organization becomes evident. Kristof (1996) states that achieving high levels of P-O fit through hiring and socializing is often touted as the key to retaining a work force with the flexibility and organizational commitment which is necessary to meet competitive challenges. Persons who fit the organization are more mobile within it, therefore hiring them will benefit the employer in facing today's organizational issues such as downsizing, quality initiatives, changes in or removal of job structures, and job rotation. Therefore, the major focus of the present research will be on P-O fit, but P-J fit will also be examined; in order to get a complete picture of the fit process.

Fit Leads to Job Performance and Job Satisfaction

Individual job performance is explained by Deadrick (1997) as a distribution of outcome levels achieved, per job function, task, or duty, over a specified time period. Campbell, McCloy, Oppler, and Sager (1993) explained that performance is herein defined as synonymous with behavior. It is something that people actually do. It can also be

observed. It includes only those actions or behaviors that are relevant to the organization's goals and that can be scaled or measured in terms of each individual's proficiency which is recognized as a level of contribution.

Basically there are two theories that explain individual performance. One believes that individual performance is stable overtime. For example, this belief is demonstrated through personal selection decisions in some organizations, which depend on work-sample ratings or they count early job performance to predict later performance. The other believes that individual performance is dynamic, focusing on individual differences in performance variability and change patterns. For example, Murphy (1989) developed a dynamic model of job performance that emphasizes the changes in individual performance that are caused by structural changes in the job or job content (environment) or caused by changes in employee characteristics. Therefore, in this research, an employee's performance is treated as dynamic and depends on the environment where he/she works. Performance is treated as an outcome of the interaction between the individual and the environment or the job.

Job satisfaction is also one of the important impacts of employment fit. Job satisfaction is about the feeling of a worker toward his or her job, or job experiences in relation to previous experiences, current expectations, and available alternatives. Smith, Kendall, and Hulin (1969) stated that job satisfactions are feelings or affective responses to facets of the situation. Cranny, Smith, and Stone (1992) defined job satisfaction as a combination of cognitive and affective reactions to the differential perceptions of what an employee wants to receive compared with what he or she actually receives.

An earlier study by Pervin (1968) explains that when a match exists between individual characteristics and organization characteristics, performance and satisfaction tend to be high. A `lack of fit' results in decreased performance and dissatisfaction in the system. There are studies that show (P-O) fit may lead to individual and organization effectiveness and performance. For example, Ryan and Schmit (1993) conducted a follow-up analysis of a small sample of insurance claim adjusters and found that the P-O fit significantly correlated with the supervisory rating performance. They also found that the P-O fit of

individuals who remained with the organization was higher than for the individuals who left the organization.

Some researchers have also found person-job (P-J) fit correlated to job satisfaction and job performance. Caldwell and O'Reilly (1990), using a profile-comparison process, examined how the fit of individual skills to specific task requirements is related to job performance on different jobs in a variety of organizations. Their research supports the idea that not only P-O fit, but also P-J fit is strongly related to a number of outcomes, including job performance and satisfaction.

Measuring Job Performance

There are several approaches to measuring job performance and job satisfaction in organizations. For job performance, organizations appraise their employees' performance basically in several ways; rating them on various personality traits, called subjective appraisal; evaluating their employees objectively which involves measuring the behaviors toward achieving his/her job/goal; and measuring the actual number of output/pieces (e.g., sales, quantity, and pattern). The second is based more on explicit and objective criteria and is more valid and reliable. In this research, participants' job performance

was measured by subjective appraisal and objective appraisal. The participants' supervisors rated the objective factors (e.g., the engineers' achievement in a job of maintenance compared to the set work target), and the participants' subordinates/peers rated the subjective measurement (e.g., the engineers' responsibility toward their subordinates).

Measuring Job Satisfaction

It has been proven since the early studies of job satisfaction that employees can be satisfied or dissatisfied with a number of distinct aspects of their job. An early work by Smith et al. (1969), found that there are five principal areas of satisfaction with the job: work itself, pay, promotions, supervision, and co-workers. Smith's finding led to development of the JDI (Job Descriptive Index), to measure job satisfaction. The JDI was used in this research to measure job satisfaction level.

The Importance of Considering Multiple Approaches in the Study of Fit

The purpose of the study is to examine how the level of fit of a person in an organization is related to his/her job performance and job satisfaction in the work place. To

determine the fit level, the research focused on two approaches proposed by theories and research: the person-organization (P-O) fit and the person-job (P-J) fit.

(P-O) fit and (P-J) fit are two different constructs. Kristof (1996) stated that the (P-O) fit concerns the antecedents and consequences of compatibility between people and the organization in which they work. P-O fit occurs when: at least one entity provides what the other needs, or: they share similar fundamental characteristics, or both. On the other hand, Kristof states that the (P-J) fit is judged to the tasks performed, and not to the organization in which the job exists. Edward (1991) also explained that P-J fit is the fit between the abilities of a person and the demands of a job (demand-abilities) or the desires of the person and the attributes of a job (need-supplies).

Theoretically, there are two distinctions to clarify the conceptualizations of (P-O) fit. The first, (P-O) fit is explained by the supplementary fit and the complementary fit. The second, the perspective of (P-O) fit is explained by the congruence of the needs-supplies and the demands-abilities distinction.

Previous research has suggested the importance of focusing on both conceptualizations and perspectives on P-O fit in studying employment fit. For example, Kristoff (1996) highlighted the importance of incorporating both types of (P-O) fit into the recruitment and selection process. Caplan (1987) emphasized the importance of studying both the demand-abilities fit and the need-supply fit in predicting job performance. Caplan stated that focusing only on one type of the fit or the other could leave out important elements of the exchange process. Those elements are needed to understand the obligations and expectations which form the psychological contract between employer and employee. A study conducted by Saks (1997) also found that not only did the P-O fit lead to organizational impacts, but also the P-J fit affected job performance, and also the P-J fit was found to be the most important in determining job satisfaction.

This research emphasized both concepts of (P-O) fit: the complementary/ supplementary fit and the demand/ abilities and needs/supply perspectives. The research also considered the traditional approach, the P-J fit, as an important factor in determining other factors in an organization. By incorporating both types: the P-O and the

P-J fit and the supplement and the complement fit may result in more accurate measurements. O'Reilly et al. (1991) said that a lack of fit on either dimension is likely to be associated with negative consequences for both individuals and organizations.

Complementary/Demands-Abilities Fit as a Determinant of (P-O) Fit

In organizations, complementary fit occurs when a person's characteristic adds to the organization what is missing. Complementary is explained by a supply-demand relationship in which fit is described according to its demands and requirements, which are discerned (Muchinsky & Monahan, 1987). Kristof (1996) says that from the demand-abilities perspective, the P-O fit occurs when an individual potentially has the abilities required to meet the organizational demands. Kristof also states that organizations demand contributions from their employees in terms of time, effort, commitment, knowledge, skills, and abilities and demand-abilities fit is achieved when these employees' supplies meet organizational demand. Generally, Caplan (1987) notes that demand-abilities focus primarily on meeting the needs of others.

Supplementary/Needs-Supplies Fit as a Determinant of (P-J)

Fit

Needs-supplies fit represents the perspective in which

the employees ask what can they get from the job, and on

the other hand the employers should know what they could

provide to the employees. The needs-supplies fit exists

when the motives or needs of the person match the supplies

in the environment for those motives. The motives with

regard to the commensurate values, included money,

opportunities, and personal and work values. The needs-

supplies fit focuses primarily on meeting one's own needs

(Caplan, 1987).

Needs/supplies fit is the basis in studying the

person-job fit. Muchinsky and Monahan (1987) say that

needs-supplies fit is the foundation for vocational

counseling, which based on a series of assessments, a

person would be counseled to pursue a certain vocation

because his or her interest is most similar to the norm of

workers in that vocation. The similarity of score profiles

between an individual and a vocational norm group is the

logical basis for recommending the pursuit of some

career/job. Job is defined as the tasks a person is

expected to accomplish in exchange for employment, as well as the characteristics of those tasks (Kristof, 1996).

Person-job (P-J) fit has been found to be related to organizational impacts. Sak (1997) found that P-J fit is positively correlated to job satisfaction and organizational commitment. Caldwell and O'Reilly (1990) conducted a study of the effect of (P-J) fit to job performance. By using the profile comparison process, a Q-Sort based technique, they conducted six investigations on different jobs. The results showed P-J that fit defined as the overall match between the individual strength and weakness and job requirement, was positively related to performance. Villanolla, Bernardin, Johnson, and Dahmus (1994) also conducted a study of the concept of (P-J) fit in which P-J fit level is correlated to job performance. By using the job compatibility questionnaire (JCQ) they found that those motion picture theatre personnel with higher 'job match' to their needs, preferences, values, and goals are correlated to the job performance.

Factors for Examining the Fit Level

In this research, in determining the P-O fit level from this perspective, two factors are used to examine the characteristics and abilities that the person has in

meeting the demands of the organization. They are (a) the

person's personality characteristic and (b) the rankings in

the selection process. In order to determine the level of

P-J fit, two subjective factors were measured in the

research project. They are (c) the person's work interest

as congruent to the participant's current job

characteristic and (d) the person's work value congruent to

the current job characteristic.

Person's Personality Characteristics (P-O Fit)

In addition to knowledge, skills, and abilities,

personality traits are also considered as important in

determining the person's behavior and productivity in an

organization. The traditional personality theory states

that behavior is primarily the product of individual traits

or dispositions. Personality traits are also believed to

be the factor in determining how well the person fits into

an environment (Black, 1994). Costa and McCrae (1992)

explained that personality traits are identified as stable,

innate, static, and hard to modify across an individual's

lifetime. Personality traits also have a strong genetic

component, therefore they become an important factor in

determining the person's performance and his/her

adaptability to a certain situation. For this research, a

personality trait is considered as an innate primary component or characteristic in determining the person's abilities in meeting organizational demands.

Personality characteristics: job performance. Recent studies on personality traits, which are based on Golberg's (1990) theory of the "Big Five" personality constructs (neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness), show some of the factors correlated to job performance. For example, Barrick and Mount (1991, 1993) have advocated the use of the model in predicting job performance (job proficiency, training proficiency, and personnel data) for five different occupations (professional, police, managers, sales, and skilled/semi-skilled). Their results show that conscientiousness has a consistent relation with all job performance criteria across all occupational groups. Extraversion was a valid predictor of job performance for two occupations involving social interaction: managers and sales. Openness to experience correlated with performance facet of training proficiency across job.

Piedmont and Weinston (1994) also using the five-factor model conducted a study of the relations of personality and supervisor rating of performance among a

wide variety of occupations (e.g. customer service, sales, management, and finance). The results supported Barrick and Mount's finding in which conscientiousness scales correlated with all the performance ratings across occupations. Low scores in neuroticism and high scores in extraversion also predicted high performance. Low agreeableness was associated with ability to accomplish work-related goals and to adapt to changing work conditions.

Tett, Jackson, and Rothstein (1991) demonstrated that personality plays a significant role in the explanation and prediction of behavior, and a person with suitable personality traits is also suitable for the environment, organization characteristic which may lead to high performance. By using meta-analytic methods, Tett et.al assessed the overall validity of personality measures in comparing subjects between professional, and non-professional and management and non-management jobs. Eight distinct categories of personality content were studied and correlated to job performance. They are the five factors in the "big Five" model, locus of control, types A behavior, and miscellaneous (other factors that are not classified in any of the previous seven). The researchers

found that agreeableness is the most highly correlated to

job performance. Extraversion and conscientiousness are

also correlated moderately to job performance (supporting

Barrick and Mount's findings), but it is a weak

correlation.

Personality testing. Historically, personality

testing was used broadly during the World War 1, to measure

the abilities of military personnel for special missions

(Black, 1994). In today's organizations, personality tests

are a form of psychological testing used for job related-

decisions: screening job applicants, making promotions, and

job placement. Personality tests are also used by

employers to predict behavior on the job. Due to demands

by the organizations, a variety of personality tests have

been revised and developed such as: the NEO personality

inventory (NEO-PI) developed by Costa and Mc Crae (1985);

the California Personality Inventory (CPI) by Gough (1987),

and the 16PF personality testing first produced by Cattell

(1946)in which revision was made according to today's

demands. The 16PF was used in the present study (see

method section for description).

Rankings and Recruitment Scores in the Selection Process

Gatewood and Feild (1998) defined selection in Human Resources practice as, "the process of collecting and evaluating information about an individual in order to extend an offer of employment. Such employment could be either a first position for a new employee or a different position for a current employee. The selection process is performed under legal and environmental constraints and addresses the future interests of the organization of the individual" (p. 3-4).

Selection and recruitment in organizations represent an endless cyclical process, which is known as theory cycle of attraction-selection-attrition (ASA) proposed by Schneider (1983). In the ASA cycle, people are attracted to organizations that have characteristic similar to their own, and the organizations select people who have the particular attributes needed for organizational effectiveness. An organization retains people who appear to be capable of helping the organization achieve it's goals, and people remain in an organization when they can achieve their own goals within the organization. This process leads to a greater degree of fit in which, those organizations end-up with people who share many common

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personnel attributes and are also in a high degree of fit

to the organization. People who fit the organization are

more likely to understand and work toward achieving the

organization's goals and objectiveness (Ostroff, 1993).

Selection/recruitment standard. Through a standard of

selection and recruitment, organizations expect to have the

most suitable candidates for future performance. Gatewood

and Feild (1998) mentioned that the main purpose of the

selection program is to predict which applicants will be

successful on the job and thus score high on the criterion

measure once they are employed by the organization.

In meeting the organizational demands, recruiters set

a valid and accurate standard of recruitment in order to

get the most suitable candidates. The more congruence the

person has in meeting the demands of the organization the

'better fit' the person is to the organization, which

should lead to better job performance. Bishop (1993)

studied how recruitment plays an important role in a job

match that leads to performance. The result shows that a

better matching of workers via selection not only leads to

better job performance, but it also creates private and

social economic benefit (e.g., recruitment cost saving).

In selecting employees, organizations and their members have a fundamental stake in how well the characteristics of the person and the organization fit one another. Caplan (1987) states that organizations wish to select a person who will best meet the demands of the job, adapts to training and changes in job demands, remains loyal, and committed to the organization. For Telekom Malaysia, four fundamental criteria were used in the selection process of the bonded engineers group. They were: academic performance, an aptitude test score, interview score, and extra-curricular activities. This research measured how the rank-order, total rating scores, and the scores of the four criteria correlated to meet the organization's demands of the participant's job performance.

Work Interest Preference Congruent to Current Job Characteristics

Generally, interest is what an individual likes to do. In career selection, other than aptitudes, abilities, and temperament, work interest also play an important role in job choice. Interest also influences the educational preparation that individuals will consider and select for their career preparation (Knapp, 1988).

Different people have different interests that make them suitable only for a certain group of occupations. Super's (1994) developmental theory, proposed that people differ in their personalities, needs, values, interests, traits, and self-concept, and that these characteristics determined which people are qualified for a number of occupations. Holland's (1973) theory of vocation reflected the supplementary fit in vocational choice. He developed standardized inventories to assess individual interests and clustered people into his "RIASEC" (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional) typology.

Muchinsky and Monahan (1987) further explained Holland's career choice and clusters by saying that the logic behind Holland's theory is that individuals should pursue vocations, which (supplementary) are matched with their interests. That is, social-type people should pursue social-type jobs (e.g., counselor, doctor, and teacher) and realistic-type people should pursue realistic-type jobs (e.g., technologist, engineer, scientist, mathematician), and so on. The logic behind why individuals were recommended to pursue vocations which supplement their interest is that, people who are in a job congruent with

their interests will be happier with their choice and will remain longer in that vocation compared to people who are in a mismatched vocation.

Work interest: job performance and job satisfaction. It is important to match a person's interest to the job characteristics in organizations. The better the 'job match' the better the individual performance. According to Murphy's (1989) dynamic model of performance, once the person has learned the knowledge and skills needed to perform the job, the person then will operate at more automatic level, which he called the maintenance level of performance. To perform at this level, a person must have interests and personality traits that are suited to the job in order to maintain his high performance.

Individuals who are placed in jobs/vocations congruent with their interests will perform better, that is, be more successful than people mismatched to jobs. They are predicted to be happier, have more stable employment, and be more productive (Muchinsky & Monahan, 1987). Caldwell and O'Reilly (1990) studied a group of production supervisors comparing the competencies required for the job by using a Q sort method. The results show a high correlation between person-job fit and their performance.

Congruence between work interest and job choice also is found correlated to job satisfaction. Mount and Muchinsky (1978) using Holland's vocation typology, measured the influence of a match between interest personality and occupational types on satisfaction and found that those employees who had achieved a match between both factors were significantly more satisfied than those who had not. Similar findings were found by Fricko and Beehr (1992) who studied the congruence between college major and job type. Their results indicated that job satisfaction was influenced by the degree of match. Cluskey (1997) studied 188 management accountants through correlational analyses and structural equation modeling. Their results found that 40% of respondents met Holland's theory of typology in measuring vocational fit/misfit. Poor vocational fit was found significantly associated with job dissatisfaction.

Work interest testing. From the early literature and research of work interests, researchers have classified work interests into different domains that are best suited to a person psychologically. Thurstone (1931) classified job activity in the interest domain as science, people, business, language, and music. Knapp (1967) refined

Thurstone's classification, proposing a classification

system by groups of occupation based on the focus of

activities and levels based on degrees of responsibility

and achievement. The theories led to production of a

variety work interest batteries such as: the Strong

Campbell Interest Inventory (SC11) by Campbell and Hansen

(1981), the Vocational Preference Inventory (VPI) by

Holland (1977), and the Career Occupational Preference

System Interest Inventory at Professional Level (COPS-P)

developed by Knapp (1967). In this research, the person's

work interest was measured by the COPS-P test. (See method

section for description).

Work Values Preference Congruent to Current Job

Characteristics

Values that derived from needs are more general than

interests. Work values are goals that one seeks to attain

and satisfy a need; they may be satisfied by more than one

kind of activity or occupation (Super, 1973). Work values

also have been discussed in relation to vocational behavior

or have been referred to as preference for the type of work

or work environment individuals would like or consider

important in job decisions (e.g., Loftquist & Dawis, 1971;

Pryor, 1979; 1981; and Super, 1973). For this research,

work values are defined conceptually as preferences (e.g. Pryor 1979, 1981) and as derived from needs (e.g. Super 1973).

The difference in individuals work value determines their choice and affective reaction. When a person becomes free to choose how his or her time will be occupied, work values and work needs play a greater role in job choice and job satisfaction (e.g., Locke, 1976; L. Knapp & R. R. Knapp, 1978; and Tom, 1971). Several studies show that work values are correlated to job satisfaction (e.g. Butler, 1983; Drummond & Stoddard, 1991) and to leader satisfaction (Meglino, Ravlin, & Adkins, 1991). The COPES work value test by Knapp (1967) was used in the research. (See method section for description).

Present Study

This research emphasized the P-O fit level as an important predictor of the organizational impact of job performance and P-J fit as an important predictor of both job performance and job satisfaction. P-O fit level, which represented the Complementary/demands-abilities fit was measured by two factors of the person (personality characteristics and rankings/recruitment scores in selection/recruitment) in meeting the demands of the

organization. P-J fit level represented the Supplementary/needs-supplies fit and was measured by the congruence between the two factors of the person (work interest and work values) to the current job characteristics.

Hypotheses

Five hypotheses were developed based on the review of the literature. Three hypotheses were formed from the conceptualization of the Person-Organization (P-O) fit in which fit is determined by the complementary/demand-abilities fit approach. Two hypotheses were derived from the conceptualization of Person-Job (P-J) fit in which fit is determined by the supplementary/needs-supplies approach.

1. The higher the P-O fit level [complementary/demand-abilities fit] the more positive the correlation between the personality characteristics of Self-control, Extraversion, and Independence and job performance.

2. The lower the P-O fit level [complementary/demand-abilities fit] the more negative the correlation between the personality characteristics of Anxiety and Tough-mindedness and job performance.

3. The higher the P-O fit level (Complementary/demand-abilities fit) the more positive the correlation between the applicants' ability in meeting the demand of the selection/recruitment procedure and job performance.

4. The higher the P-J fit level (Supplementary/needs-supplies fit) the more positive the correlation between the engineer's work interest preference (technology, electrical; technology, mechanical; technology, civil, and computation) to current job characteristics (high technical work) and job performance and job satisfaction.

5. The higher the P-J fit level (supplementary/needs-supplies fit) the more positive the correlation between the engineer's work values preference (practical, investigative, and orderliness) to the current job characteristic (high technical work) and job performance and job satisfaction.
(Please refer to appendix B, table 1 for the analysis procedure)

CHAPTER TWO

Method

Participants

The participants in this study were 106 employees of

Telekom Malaysia. They included engineers, system

analysts, computer analysts, and other technical workers.

They were selected from a variety of technical divisions of

the company. The participants consisted of two categories

of employment levels; the executive level and the

managerial level. The participants' age ranges from 23-47,

and the mean age is 27.8. Their years of service with the

company ranges from 1 to 28 years.

Even though the research proposal mentioned that this

research would focus only on engineers group, during the

research, there were several computer analysts, system

analysts, and technical executives doing engineering jobs.

As a result, these three groups were included in this

research. The participants were chosen only from the

technical department or from the production department.

The research ended-up with 106 participants, 76 (72.2%) men

and 30 (27.8%) of women. The participants consist of 76

(72.2%) engineers, 10 (9.3%) system analysts, 7 (6.5%)

computer analysts, 10 (9.3%) technical executives, and 3 (2.8%) are missing value. (See appendix B, table 2)

The participants worked at a various technical level of jobs. Ten (9.4%) of the participants worked at a very highly technical division (more than 75% technical). Forty-seven (44.3%) worked at a highly technical division (50-74% technical). Twenty-six (24.5%) worked in the low technical ones (25-49% technical), and 20 (18.9%) worked in the low technical division.

All participants were fluent in written and oral English. As to academic qualification, the majority of the participants have the first degree in engineering, computer science, or information system. Fifty-two (48.1%) of them graduated from one of several Malaysian universities, 48 (44.5%) graduated from overseas (United Kingdom and U.S.A) universities, while 8 (7.4%) of them didn't give the information (table 2).

Two categories of Telekom employees participated in this study; which are 99 (93.5%) executive level who are at lower grade position (19-22) and 7 (6.5%) of managerial level who are at middle grade (23-26) in job position. The executive level consists of bonded and unbonded employees. The bonded group includes those who had been offered a

scholarship for pursuing their undergraduate degree, then later were recruited and bonded to work for 6-12 years. They have been working in the company for only 1-4 years. This group's age ranges from 23-29. On the other hand, the unbonded employees were either freshly recruited or promoted under promotional scheme. They have been working for the company for 4-26 years. The group's age ranges from 28-47. The managerial level group has been working for the company for 14-23 years. Their age ranges from 40-46 years old.

Measures

Three measurement tests were used to get data for the three independent variables (personality traits, work interests, and work values). The data on selection/ recruitment procedure was obtained from existing personnel data within the company. Two sets of questionnaires were also used, one to measure the dependent variable of job satisfaction level and another to get the participants' demographic data. Two performance assessment forms were used to get data on the dependent variable of job performance.

Independent Variables

Three English computer-scored tests were used to measure the independent variables:-

The 16PF personality test. The 16PF personality test was used to measure 16 primary personality factor (See Appendix A 1). The 16PF also contains a set of five scales that combine related primary scales into global factors of personality that are known as: Extraversion (EX); Anxiety (AX); tough-mindedness (TM); Independence (IN); Self-control (SC). (See Appendix A 2)

The 16PF personality test is found correlated to the "big five" personality model (Russell & Karol, 1994). Factors that correlated were: Extraversion of the 16PF test correlates strongly to the extraversion of the big five model. The Anxiety in 16PF correlates with the Neuroticism domain in the big five. The tough-mindedness global factor correlates negatively with the openness to experience of the big five. Independence factor in the 16PF correlates with the extraversion of the big five model. (See appendix B, table 3).

For the 16PF test, it has been proven that it is also a personality measurement tool with high reliability and validity. The 16PF test has evidence of the consistency of

results over time based on the test-retest correlation. Test-retest coefficients for the five global factors for two-week interval range from .84 to .91 with a mean of .87, and test-retest coefficient for a two-month interval range from .70 to .82, with a mean of .78. Its internal consistency values range from .64 to .85 with an average of .74 (the Cronbach alpha coefficients were calculated on general sample norm of 2,500 adults).

The 16PF questionnaire contains 185 items that comprises the 16 primary personality factor scales. Each scale contains 10 to 15 items. The test takes at most 50 minutes to complete. The test questions have a three-choice answer format: Yes, No, and the middle response choice is always a question mark (?). (See Appendix A 3). The completed computer test forms were scored and interpreted by IPAT.

The COPS-P interest test. The COPS-P was produced by EDIT Company to measure eight clusters of work interests. The eight work clusters (science, technology, outdoor, business, computation, communication, arts, and service) were classified into a 16 occupations clusters (See Appendix A 4). Its internal consistency values ranges from .86 to .92 with a median of .89 (the alpha coefficient have

been obtained from samples of 2,689 college students). Its test-retest reliability coefficient for one-week interval ranges from .85 to .95, with a median .94.

In this research a machine-scored questionnaire was used; in which items are printed that allowed participants to directly mark their answer. The questionnaire consists of 192 job activity descriptions. The descriptions reflect the work performed in a wide variety of occupations. Participants respond to the items according to a degree of "like" or "dislike" for each activity which are: "L" (like very much) or "l" (like moderately), or "d" (dislike moderately), or "D" (dislike very much) (See Appendix A 5). This free-choice response allows the participants to state their degree of like or dislike for each activity without forcing a choice between activities which may be equally appealing or distasteful (Knapp-Lee, 1982). The questionnaire were scored and interpreted by Edits.

The COPES work values tests. The test measures eight work values dimensions which are: Investigative vs Accepting, Practical vs Carefree, Independence vs Conformity, Leadership vs Supportive, Orderliness vs Non-Compulsive, Recognition vs Privacy, Aesthetic vs Realistic, and Social vs Self-concern (See Appendix A 6).

Each eight dimensions of work values is found to be related to a specific career cluster. This relation has been proven through a comparative study between the COPES work values and the COPS-P career clusters (L. Knapp & R. R. Knapp, 1992). The result shows that Recognition was related the occupations in communication, business, art, and professional. Leadership temperament is ranked consistently for business and service, skilled or technology, skilled and consumer economic job. Aesthetic temperament rankings is found in the arts clusters of profession. Social temperament rankings are often found in the service cluster. Practical, Investigative, and Orderliness are found as the primary values indicators in the technology of occupation (See Appendix A 7).

The COPES machine-scored questionnaire with internal consistency coefficient ranges from .67 to .90, was used to measure eight dimensions of values that are identified as investigative, practical, independence, leadership, orderliness, recognition, atheistic, and social. Each of the dimensions measured by two-choice, paired-comparison items. Twenty items were made to measure each dimension; therefore it consists of 160 two-choice paired comparative items reflecting values held by people in a wide variety of

occupation. Participants responded to these items by choosing the stem that best compare the statement "I value activities or jobs in which (I)....." (a). Do tasks that are not too difficult and challenging (b). Always work on difficult and challenging tasks" (See appendix A 8). The data was scored and interpreted by the EdITS company.

Selection/recruitment procedure. The data of the independent variable, recruitment/selection procedure of the participant is gathered from the personnel record that was available in the company. The recruitment for the un-bonded employee were more variable and there were no proper personnel record of recruitment available. Therefore, data were gathered for only the bonded employees. Three selection procedures for three different groups of participants have been used in the recruitment process. The four criteria were: interview, academic performance, aptitude test, extra-curricular/leadership in which candidates were rank-ordered according to the total point score (100%) of the four items (See Appendix A 9). The participants in the research are selected and recruited based on the ranking score (See appendix A 10).

Dependent Variables

Data for the two dependent variables: job satisfaction level and job performance, were collected by using a questionnaire form and two job performance assessment forms.

The Job Descriptive Index. The JDI form designed by Bowling Green State University was used to measure job satisfaction level. The JDI was chosen, as it is proven to have consistently high reliability and validity in measuring job satisfaction facets. For internal reliability, it was calculated from approximately 1600 cases of data form the national norm. The Coefficient alpha estimates the reliability for each subscale is as follow: work, .90; pay, .86; opportunities for promotion, .87; supervision, .91; co-workers, .91; and job in general, .92.

The JDI is a hand scoring form, which measures the level of satisfaction in six facets: present work, present pay, promotion, co-worker, supervision, and job in general (see appendix A 11). In the questionnaires, participants are required to think of their work and note down the word "Yes", or "No", or "?" besides each item written for each facet. Eighteen items were chosen to clarify each facet

except for facet of pay and facet of promotion, which are only eight items each. For example, for facet present work, items written are: fascinating, routine, satisfying, boring, and so on (See Appendix A 12).

Job performance assessment forms. The participants' job performance was assessed by two different performance assessment forms, which had been developed for the research. The performance was assessed by two categories of raters: immediate supervisors and peers or subordinates. The form which is assessed by the supervisor measured the participants' achievement toward the work targets. The rating scale is based on five performance standards: "5" is the most acceptable performance and "1" is totally unacceptable performance. The work targets and weights were determined by the supervisor. The weight explains the degree of importance between one work target to the others (See Appendix A 13).

The form which is assessed by the peers/subordinates measured the person's characteristics and behaviors in performing the jobs. This form, which is designed in the Malay version (Malay version is chosen to cater the needs of participant's subordinates) consists of ten dimensions of job behavior characteristics: overall knowledge and

understanding of work (technical operation, the work

management, and quality of production); ability in managing

and delegating jobs to subordinates; openness toward

learning new jobs and ideas for better work quality;

responsibility toward jobs and subordinates; ability in

communication; ability in work problem-solving; interest

towards jobs; readiness toward accepting job and working

after work hour; creativity toward news ideas; and

seriousness toward punctuality and schedule. The

dimensions are measured by 1-5 scale which are: 5= Very

Excellent, 4= Excellent, 3=Fair, 2=Poor, and 1=Very Poor.

(See Appendix A 14)

Others Data

Using the demographic questionnaire, the job

characteristics were self-described by the participants

(See Appendix A 15). The job characteristics are

segregated according to a hundred percentiles of job

characteristics (technical, management, and others). The

participants were required to analyze their job duties

either monthly or weekly, and to percentile the job

according to three categories: percentage of technical work

including maintaining, designing, and planning the

technical operation; percentage of management work such as

report writing, corresponding, and budgeting: and others mean such as marketing and entertaining customers.

Procedure

The participants were chosen from a list of employees which was provided by the company. A total of one hundred and eighty nine (189) technical employees were contacted by e-mail, then followed by mailed-letter and telephone. Out of them, 117 responded to the mail in which 16 of them requested the tests and questionnaires to be mailed to them. Only five of the mailed tests were returned. A series of meeting schedules was also mailed to the participants so that they could attend the research program of their choice.

The data collection, which took a three-month duration, was conducted in two stages. The first stage was to get the measurement tests and questionnaires filled-out by the participants. The second stage was to get the performance rating of the participants from their supervisor and their peers/subordinates. At the first stage, the research was conducted in two divisional locations at Telekom Malaysia.

Data Collection: First Stage

First, research was conducted in the office of Central Regional Division in which the meetings were conducted in a small group of 2-8 participants. Second, research was conducted in Northern Regional Divisional Office in which a group of 24 participants including the managerial employees filled-out the questionnaires and measurement tests.

For each meeting, the participants filled-out three measurement tests (the 16PF, the COPS-P, and the COPES) and two questionnaires (demographic data questionnaire and the job satisfaction questionnaire). The company's meeting rooms were used for the needed privacy and a quite surroundings. In each research meeting, the participants were provided with pencils, erasers, and an English-Malay dictionary.

Before the research began, all participants were required to come on time to sign an attendance form. The research didn't start until all the participants for one meeting had arrived. The participants met in a meeting room in which they were seated facing each other. Before the tests and the questionnaire were distributed to them, the participants were informed and briefed about the purpose of the research. They were also informed of the

confidentiality of all information and data gathered, and that it would be used only for academic purposes and to improve the human resources practices in the company. The participants were also ensured that the research outcomes would not affect them individually at their job. The research only began after the participants had understood the purposes and agreed to volunteer.

All measurement tests and questionnaires were distributed to participants at once. Before explaining the tests' objectives and the instructions, the participants were required to give a quick-scan to the questionnaires to ensure that the test contents were understandable. They were also told that "In the long term, they will do the best to themselves by being honest and frank in their self-description when filling-out the tests". They also were encouraged to complete the tests at a steady pace. Without any biases, the participants were directed to begin with the demographic questionnaires, then followed by the 16PF, later by JDI, and ended-up with the COPS-P and COPES. During the test time, they were allowed to ask questions and to refer to the dictionary. Break time was allowed only in between each test. Each completed questionnaire was collected before the next test began. Time taken to

complete the four questionnaires varied. Generally, a participant took between 1.5 - 3 hours to complete all four tests and questionnaires. The major causes of these differences may be the English ability. The research ended-up with 103 filled-out forms for the job satisfaction questionnaires and 3 forms were incomplete, 106 each for the COPES test forms, the COPS-P forms, and the 16PF personality test forms.

Data Collection: Second Stage

After the first stage was completed, the job performance forms were mailed to the respective supervisors. All supervisors were contacted by e-mail and then followed up with mailed-letter, and telephone. A letter, explaining the purpose of the assessment and describing how to fill-out the forms was mailed to them. The assessment forms were returned to the research center in duration of a week to one month. As requested by the divisional Manager, performances for the 24 participants from Northern Regional Office were based on assessment for the year of 1997. Ten other participants' performances are also based on 1997 assessment, as the mailed forms were not returned. Thus performance had been measured with a form that was designed by Telekom Malaysia and currently in used

in the company. Finally, three job performances, which are called job performance 1, job performance 2 and job performance 3, are counted and analyzed separately in this research. The research ended-up with 56 participants' for job performance 1 (assessed by the supervisors), 52 job performance 2 (assessed by peers/subordinates), and 34 participants' job performance 3 (based on the year of 1997) were collected for this part of the research.

Data on selection/recruitment procedure were collected from existing data available in the office of Human Resources Department at the Central Regional Office. The collected data excluded the 24 participants from the Northern Regional Office in which this group had been recruited by the Northern Regional Office and the recruitment data were not available at the Central Regional Office. The collected data presented that three different recruitment were conducted, and each recruitment had used three different procedures in which divided the participants into three groups. The first group (mtp 1) was recruited in the year of 1991 in which three criteria had been used in the selection procedure: the aptitude test, the interview, and the extra-curricular. The second group (mtp 2) was recruited in the year of 1992 in which 4

criteria had been used: the interview, the aptitude test,

the academic performance, and the extra-curricular

activities. The third group (mtp 3) was recruited in

between 1991-1993. Two criteria had been used in the

selection/recruitment procedure: the academic performance

and the interview. Nine (9) participants are categorized

in the first group (mtp 1), 35 participants are in the

group 2 (mtp 2), and 33 participants are categorized in the

group three (mtp 3). As a results of the small sample

sizes the three groups were combined based on their

respective total recruitment score and rank orderings.

Analyses

Pearson correlation coefficients were run to analyze

the variables. Mean and standard deviation scores for each

measurement test were taken. Three analyses were run to

measure the correlation of P-O fit with job performance.

The Person (P) factor (abilities) is represented by: the

person's personality characteristic score and the rankings

and recruitment score in the selection/recruitment. The

Organization (O) factor (demands) is represented by:

personality domains that predict job performance and the

selection/recruitment procedure developed by the recruiter.

Two analyses were run to measure the correlation of P-J fit

with job performance and job satisfaction. The Person (P)

factor (needs) was represented by the person's work

interest and work values preference. And J (job) factor

(supplies) was represented by job characteristic.

Analysis 1

Analysis 1 was run to test the hypothesis 1 and 2.

The score in the five factors of personality characteristic

(five variables: anxiety, extraversion, independent, self-

control, and tough-mindedness) were analyzed with

correlation method to job performances 1 (Supervisor

ratings) and job performance 2 (Peers/Subordinates

ratings).

Analysis 2

This analysis was run to measure hypothesis 3 in which

the rank ordering score point (total score) of the

selection/recruitment was analyzed correlationally (Kendall

coefficient) to dependent variable, job performance 1 and

job performance 2.

Analysis 3

This analysis was run to measure the hypothesis 4, in

which the person's work interest preference [four

variables: technology (civil), technology (electrical),

technology (mechanical), and computation] was measured to

the dependent variables: job performance 1, job performance 2, and job satisfaction (present work, pay, opportunity for promotion, supervision, co-worker and job in general).

Analysis 4

This analysis was run to measure the hypothesis 5. Pearson correlation was used to measure the correlation of work values preference (three variables: Investigative, Orderliness, and Practical) with Job performance 1 and 2 and job satisfaction.

Analysis 3 and 4 were run on Partial correlation controlling for the variable of job characteristics (low technical and high technical). Due the small sample sizes, partial correlation was used to measure the degree of importance the variable job characteristic in determining the job performance and the job satisfaction level.

Results

Correlational methods were used to investigate how the
two Concepts of fit, P-O fit and P-J fit, were correlated
to the two organizational impacts, the dependent variables:
job performance and job satisfaction. All tables in this
analysis provide the results of the correlation coefficient
(r); total number of computed case (n), standard deviation
(SD) the mean value ($\bar{X}$) .

The Five Factor Personality Characteristics (Demands-Abilities Fit)

Table 4 (See appendix B) shows the result of
correlation process for the five 16PF personality
dimensions of engineers with the two job performances
rating. The total of computed case (n) for job performance
1 (supervisor rating) was 43 engineers. The research
hypothesized that the facet Self-control, Extraversion, and
Independence would be correlated positively to job
performance. The results show that the Self-control facet
(.20) is found to be correlated positively to the job
performance 1 (supervisor rating) for the engineers. The
results for Extraversion (.06) and Independence (.00) did
not support the hypothesizes. As hypothesized the

correlation of the dimension of Anxiety (-. 12) is found

negatively correlated to job performance 1 (although not

significant statistically). The result for tough-

mindedness did not support the hypothesis.

For job performance 2 (peers/subordinates rating),

total cases were computed is 44 engineers. The result

shows a similar direction of correlation as in the job

performance 1 but a strong correlation is found at the

dimensions of Independence (.25). The result indicates

that Independence to be a more stronger predictor for the

performance 2 than the performance 1.

Recruitment Scores and Rank-Orderings in the Selection/

Recruitment

Data of the recruitment was analyzed separately across

each factor of the recruitment procedure. This analysis

filtered to only MTP 2 (recruited in the year of 1992) as

this group represented a large enough number of cases and

also variety of factors were used in the selection process.

Table 5 (See appendix B) reports the correlation of the

recruitment score to the job performance 1 and job

performance 2. A total of 25 cases were analyzed to job

performance 1, and 22 cases for job performance 2. The

results show that the academic performances, the aptitude

test (.17), the interview (.30), and the total recruitment score (.25) are positively correlated to job performance 1, and to job performance 2 with r values ranges from .03 to .27). Although none are statistically significant, from the analysis, the result shows that the above-mentioned three criteria are to be a positive predictor to job performance 1 and job performance 2. Academic performances became only a predictor to job performance 1 and not to the job performance 2 which is negatively correlated (- .06). The extra-curricular is found as not a valid predictor for both job performance I and job performance 2.

The research also analyzed the total recruitment score for the combination of the three groups: MTP1, MTP2, and MTP3. Table 5 shows the Pearson correlation between the total recruitment score for the combination group. A total 43 case for job performance 1 and 47 for job performance 2 were analyzed. The correlation between total recruitment score and the job performance 1 (.05) and to the job performance 2 (.16), and both are failed to reach statistical significance. Due to incomplete data, the correlation of rank-orderings (begin with smaller number at top) to job performances is analyzed to MTP2 only. A total of 18 cases were analyzed in which the result shows a

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negative correlation between the rank-orderings number to job performance 1 (- .27) and to job performance 2 (- .21)(although not statistically significant). The lower the person at the order-rankings in the recruitment process the lower the performance.

Work Interest to Job Performance and Job Satisfaction

Table 6 (See appendix B) indicates the relationship of the four work interest clusters that are related to an engineer profession, [computation, technology (civil), technology (electrical), and technology (mechanical)] to the job performance 1(supervisor rating) and job performance 2 (peers/subordinates rating). The cases filtered to executive engineers. Data was computed by correlation coefficient then by partial correlation controlling for job characteristic. A total of 42 cases were analyzed in this analysis.

The results show that all the four facets of work interests: computation (.27), technology (civil) (.27), technology (electrical) (.25), and technology (mechanical) (.25) are correlated positively to job performance 1. The finding shows that the level of technical difficulty seems not to be important in determining the correlation between the job work interest and job performance 1. For job

performance 2, the results also show a similar direction of relationship as in the performance 1, in which the four facets of work interest are correlated positively to job performance (r values range from .05 to .17), although none attained statistical significance. The results also show that job characteristic was not important in controlling the correlation between the work interest and job performance.

Table 6 also shows the correlation of the four work interest clusters to the six job satisfaction facets. A total 65 case was analyzed in the analysis. The results show that a person who scored high in technology (mechanical) seems to be correlated positively to the job satisfaction facet of supervision (.23). In general, the r values for Partial Correlation controlling for job characteristic does not support the research hypothesis that job characteristic is an important factor in determining the direction of the correlation between work interest and job satisfaction.

Work Values to Job Performance and Job Satisfaction

Table 6 also describes the relationship of work values to job performances and job satisfaction level. Three facets of work values (investigative, orderliness, and

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practical) were interpreted in this analysis. The three facets are proven to be correlated to technology professions by previous researchers. This analysis is also selected to only data of executive engineers. A total of 43 cases were used to analyze the relationship of work values to job performance 1. The results show that high scored in the facet of Orderliness was positively correlated to high job performance 1 (.26). The facet of Investigative was to be positively correlated to job performance 2 (.23). A person scored high in practical was found to be negatively correlated to job performance 1 (- .24). This research finding also shows that job characteristic is not important to influence the relationship between work values and job performance.

Table 6 also describes the correlation between the work values and job satisfaction level. The results show that the higher the score in the work value of Orderliness was positively correlated to higher job satisfaction level with regard to pay. A negative correlation was found between the Practical work value and job satisfaction (supervision).

CHAPTER THREE

Discussion

Research on fit has received a considerable amount of
attention in the last few years. In this research, P-O fit
and P-J fit are chosen in order to study the effects of fit
on job performance and job satisfaction among engineers at
Telekom Malaysia. P-O fit is designated from the
organization's perception, how an organization perceives
"fit" in the human resources practices (selection,
recruitment, promotion, and job placement) toward the
engineers group. P-J fit is designated from the engineer's
perception, how far he or she feels that his or her needs
are supplied by the organization.

P-O fit: The five personality factors. Present
research findings support the hypothesis that the facet of
Self-control (Conscientiousness) is correlated positively
to job performance rated by the supervisor among the
engineers. The finding supports the previous finding of
Barrick and Mount, (1991), who found Conscientiousness to
be a predictor to job performance across occupations. The
research finding became evident that self-control factor
determines the potentiality and ability of a person to meet

the organizational demands (job performance) for engineer
occupation at cross-cultural situation.

In today's human resources practices, the use of
personality factors as criteria in the employment decision
has been widely recognized. Personality characteristics
are broadly used in the practices of job placement,
recruitment, promotion, and to choose employees for special
function (e.g. for overseas placement). In Telekom
Malaysia, the technical department is the key division
determining the company's productivity. The company
demands the most "fit" employees be employed, especially
engineers. Demand-abilities perspective theory concluded
that person-organization fit exists whenever an
organization has fulfilled its demands through employing
the "suitable" person in the work place. To be specific,
employing a person with a high self-control facet is not
only for meeting the demands of the organization but also
to nurturing the P-O fit. P-O fit or demands-abilities fit
probably exists whenever more engineers with a high score
of self-control facet (to represent the supplies) are
employed in the technical department.

A high self-control person is defined as a person with
a pattern of behavior that leads one to be trusted by other

people. Related to work, he or she is recognized as a person with a tendency to work hard and to be loyal, to give a full day's work each day, and to do one's best to perform well (Rymark, Schmit & Guion, 1997). These behaviors are consistent with the requirements set by organizations, which emphasize performance to the fullest, and this leads to nurturing demands-abilities fit. A self-control person also tends to follow instructions and to accept a company's goals, policies, and roles in which this may lead to improving the P-O fit level. In other words, their self-control characteristic determines the person's adaptability to organizational goal, values, cultural, and environment. A High self-control person also indicates a perfectionist, a tendency to be organized and those most comfortable in a highly organized situation. These behaviors are most required by high technical work demands such as: technologically advanced electronics, complicated work, and technical design.

In this research, the results for Independence partially supported the hypothesis in which it was found to be positively correlated to performance that was rated by peers/subordinates, but not to the one rated by supervisors. Independence was correlated positively to

peer/subordinate ratings, probably due to the characteristics that are explained for this facet. The 16PF personality factor explains that a highly Independent person tends to be dominant, socially bold, vigilant, and open to change (Cattell, 1945). They tend to enjoy trying new things and exhibiting an intellectual curiosity. Probably, this characteristic influenced how the peers/subordinates view this person's behavior and ability in dealing with their job.

Previous research has found that the facet of Independence in the 16PF is correlated positively to the facet of Extraversion of the Big-five personality factors model. Therefore, a high score on the Independence facet of the 16PF personalities will also scores high in the facet of Extraversion of the big-five model. Several research of the Big-five model found that the Extraversion is a predictor to success for jobs involving high degrees of social interaction (Barrick & Mount, 1991). The big-five model explained that a high Extraversion person indicates behaviors with a warm, engaging, positive, and concerned orientation toward others. Probably, these elements influenced the positive relationship between the engineers and the peers/ subordinates as well as the

performance rating by the peers/subordinates. This cooperative relationship probably influenced the performance assessment rated by the peers/subordinates.

Although not statically significant, the research results show a consistent finding to the hypothesis in which the factor of Anxiety is found to be negatively correlated to performance among the engineers. The results explain that the Anxiety was not a favorable factor in predicting job performance for engineer occupation.

A high Anxiety person indicates behaviors with a tendency to be reactive rather than adaptive, distrustful and vigilant, worrying, and apprehensive, and tense. These elements are opposites to the behaviors indicated by the Self-control factor, in which the behaviors of an Anxiety person discourages high performance in technical work demands. These behaviors also indicated a non-adaptability to an organization in which probably discourage to nurturing P-O fit.

P-O Fit: Selection/recruitment scores and rank-orderings. This research also focused on how a selection/recruitment process may determine and improve the fit level between the person and the organization. Although none of the results are statically significant, the research

findings support the idea that recruiting strategies can be developed to increase the pool of applicants with the particular characteristics that match the organizational context for enhancing congruence in certain areas relevant to organizational performance.

The research findings also substantially replicate and extend earlier theories regarding the purpose of selecting/recruitment process to get the most suitable candidates that fit not only to the job, but also to the organization. The results show that generally some of the criteria set by Telekom Malaysia are correlated positively to job performance. Consistent to the Theory of ASA (Schneider, 1983), the research results propose that the applicants who have been selected or attracted to the organization were found to be fitted to the organization which in turn led to higher job performance. The findings show that the recruitment process was able to maximize the P-O fit between the engineers and the organization in many aspects, therefore the engineers were adapted through the socialization process more quickly in the organization (Chatman, 1991).

The results for the MTP 2 selection/recruitment show strong evidence to support the hypothesis that the higher

the similarity of a person in meeting the organization's demand during selection, the higher the performance after the recruitment. This finding also supports the usefulness of a rank-order procedure method in selecting and recruiting employees. Rank-ordering applicants by their selection score predicts that a person with a higher score will perform better on the job than a person with a lower score (Gatewood & Field, 1998).

The positive correlation between the aptitude test score and job performance found in this research, supports the idea of the usefulness using an aptitude test (nowadays called the ability test) as a predictor in recruitment. The finding states that those with higher ability test scores are predicted to have higher job performance.

The result for the interview criteria shows that a positive correlation exists between the score and job performance. The finding supports the idea that says interview criteria, if used appropriately in the selection process, may ensure the reliability and validity of the recruitment (Gatewood & Feild, 1998).

The use of extra-curricular information has long been recognized and used in selecting well-rounded students to enter universities. The research finding proposed that the

use of extra-curricular information as a criteria in selection/recruitment predictor to job performance is not popular and not recommended as a valuable factor in selecting employees. The results of the correlation between the academic achievement to job performance were variable, therefore this research suggests that without the support of other criteria, academic achievement alone may be insufficient to demonstrate the validity of a recruitment process.

P-J fit: work interest preference. Today's research on "fit" in organizations is primarily focused on P-O fit more than any other approach (Kristof, 1996). But the traditional approach, P-J fit, is still an important contributor concerning the impact of job performance and job satisfaction. The research findings reported support the idea that says P-J fit is correlated positively to job performance and job satisfaction (although not statistically significant) (Caldwell & O'Reilly, 1990; and Sak, 1997).

In this research, the study on the congruence of a person's work interest to their current job represents the P-J fit level. The result shows a positive correlation of P-J fit with job performance and to job satisfaction

(pertaining pay), in which a person-job misfit is associated with low performance and low job satisfaction. Generally, the overall results support the previous research on P-J fit in which a person is believed to have high job performance if he or she chooses or is given a job that is similar to his or her traits or interests (Holland, 1985; Muchinsky & Monahan, 1987). An initial interpretation of this finding also suggests that engineers who have a high interest in technology occupations are positively correlated to job performance. Consistent with the hypothesis, the research results show that when a person's work interest preference match to his job, the P-J fit will be high; this then leads to higher job performance.

As proven by earlier research, the engineering profession is clustered into the occupational cluster of technology. The nature of an engineer's work is involved with high technical work such as: structuring, designing, and maintaining technical item. For this research, it was assumed that other factors such as work experience and skills were not the predictors to the job performance and the job satisfaction. The research finding proposes that if the work interest preference is congruent to the current

job then it may nurture the P-J fit level which leads to higher job performance.

P-J fit: work values preference. Person-job fit is also believed to be determined by the congruence between the work value preference and the person's current job (Meglino, Ravlin, & Adkins, 1991). Work values are often touted as related to behavior. A person who finds that his or her values do not match with what he or she is doing often results in low performance and dissatisfaction. As proven by previous research, the factors of Investigative, Orderliness, and Practical in work values are related to technological occupations. A person who has a high interest in technology occupations also values elements of Investigative, Orderliness, and Practical (Knapp-Lee, 1987).

The research findings of the correlation between work values preference to job performance and job satisfaction were mixed. Supportive results were found for the factors Orderliness and Investigative. The finding shows that engineers who valued higher Orderliness and Investigative were found to have higher performance in either rating by the supervisors or the peers/subordinates. But, the research finding shows no supportive evidence to conclude

that the element of Practical determines the fit level between the person to the current job, as the result shows a negative correlation between them.

Inconsistent to the hypothesis, the research found the amount of technical difficulty in the job was not important in determining the correlation between factors of work interest and work values to job performance and job satisfaction.

Maximizing the match between a person to a job (Bishop, 1997) may contribute to increasing job performance and job satisfaction in organizations. Eventhough many other factors may influence the persons' productivity such as skills and abilities, in the long term, improving the person-job match is more likely to result with positive impacts to job performance and job satisfaction.

The Research Limitation

Several limitations of this research should be noted. First, the participants did not represent the overall demographic realm of engineers in Telekom Malaysia in the tenure, age, and work location. The majority of the participants were at the early year of service (1 to 3 years) which may have effected the job satisfaction

results. Previous research found that tenure is correlated positively to job satisfaction level among employees.

Second, the number of measurement tests/questionnaires used in this research was probably large for a single research. During data collection, to avoid missing data, participants were required to fill out all tests or questionnaires at a single meeting, which took 1.5 to 2.5 hours. This long period of time probably created pressure and may have affected the accuracy of the responses. For example, the 16PF was fill out at the beginning and the COPES work values was fill out at the end. Therefore the research results for the COPES may have been effected by the placement within the other tests.

Third, English is the second language of the participants. Understanding the questionnaires which were in English may have affected several participants thus affecting the accuracy of the data.

Fourth, the job characteristic described in the research was based on the participants' judgement. The most accurate classification would be derived if the job description was made through a proper job analysis procedures.

Fifth, the participant's size of the research was too small to draw conclusions about the represented population in many instances. The responses from a small percentage of population (participants) does not represent the whole population. Even though the research collected data from 106 participants, the job performance reports were returned for only 56 supervisors and 52 peers or subordinates of the participants.

Finally, job performances were rated independently by each participant's supervisors and peers/subordinates. The better job performance rating should minimize the number of raters. Different raters probably have different expectations, goals, and values, which may slightly affect its validity and accuracy.

The Research Implication

A contribution of this research is providing an employment fit study by using the latest theory of P-O fit and the traditional theory of P-J fit. The study results imply that "fit" is one of the important factors that leads to job performance at cross-cultural level.

For the personality characteristic study, the research findings supported the findings made by the previous research. The results indicate that personality factors

play the same role at cross-cultural situations. The element of Self-control (conscientiousness) was found to be a predictor of job performance not only across occupations but also across cultural.

From this research, it can be proposed that personality measurement tests should be used not to discriminate against applicants, but rather to meet the goal of improving the match between the person to the organization, or to the job requirement. With a proper management of personality testing, the element of Self control (Conscientiousness) may be used for screening job applicants, promotion, and job placement in technical departments, specifically in the company of Telekom Malaysia for the purpose of improving person-organization fit. Even though the element Anxiety was found not to be the predictors to job performance, organizations should not use this element to eliminate applicants but rather use it as a factor to maximize the person-job fit in the organization. For example, to match the person to a specific job requirement.

In order to improve the P-O fit from the demands-abilities fit perspective, this research proposes the importance of using personality characteristics in human

resources practice along with abilities, skills, and knowledge. Research has proven through similar findings that some elements of personality characteristics are predictors to job performance and also nurturing the person's adaptability to the organization.

It is important to organizations, especially the related company, to acknowledge that improving employees' job performance and job satisfaction is not an easy task. Sending employees to training may be one of the ways to improve skills, but job performance and job satisfaction are affected by many other factors such as fit. Therefore, another solution to improve performance and satisfaction is by studying the P-O and P-J fit level in the organization, such as: implement job restructures to improve P-J fit.

Follow-up research is required for better findings in some aspects of this research. In the area of personality characteristics, a further study may be required for better correlation results of the five personality factors especially Self-control, Independence, and Extraversion in predicting job performance. A larger sample size is required for a statistical significant finding.

This research finding does not provide strong evidence to conclude that the P-J fit is correlated to job

satisfaction. A further study of the correlation between the work values and work interest to job satisfaction is suggested. A Job Compatible Questionnaire (JCQ) method is proposed to be used in order to determine the fit level between the person's work values and work interest preference to the job characteristics.

Conclusion

Although the research recognized several of its limitations, several conclusions can be offered: First, at a general level, the results from this study indicate that "fit" is desirable and is important to the effectiveness of the organization. Second, the relationship between "fit" and effectiveness and job satisfaction may not be as simple and straightforward as originally believed.

Although it is somewhat speculative, the research does provide additional evidence to support the idea of the importance of P-O fit that is determined through the demands-abilities fit and how it is associated to the organizational impacts of job performance and job satisfaction.

Although P-J fit was measured on job satisfaction and job performance, it is found to be more validated and related to job performance in this research. P-J fit can

be improved probably by changing the work structure within the organization.

In conclusion, these research results may lead researchers to conclude that P-O fit and P-J fit are the desirable states for organizations. Future research is necessary for better evidence, especially studying the contribution of the recruitment/selection procedure in maximizing P-O fit level.

Appendix A:

Research Documents and Instruments

Appendix A 1

The 16PF Primary Personality Factors

	Factor	Left Meaning	Right Meaning
A	Warmth	Reserved, Impersonal, Distant	Warm, Outgoing, Attentive to Others
B	Reasoning	Concrete	Abstract
C	Emotional Stability	Reactive, Emotionally Changeable	Emotionally Stable, Adaptive, Mature
E	Dominance	Deferential, Cooperative, Avoids Conflict	Dominant, Forceful, Assertive
F	Liveliness	Serious, Restrained, Careful	Lively, Animated, Spontaneous
G	Rule-Consciousness	Expedient, Nonconforming	Rule-Conscious, Dutiful
H	Social Boldness	Shy, Threat-Sensitive, Timid	Socially Bold, Venturesome, Thick-skinned
I	Sensitivity	Utilitarian, Objective, Unsentimental	Sensitive, Aesthetic, Sentimental
L	Vigilance	Trusting, Unsuspecting, Accepting	Vigilant, Suspicious, Skeptical, Wary
M	Abstractedness	Grounded, Practical, Solution-Oriented	Abstracted, Imaginative, Idea-Oriented
N	Privateness	Forthright, Genuine, Artless	Private, Discreet, Non-Disclosing
O	Apprehension	self-assured, Unworried, Complacent	Apprehensive, Self-Doubting, Worried
Q1	Openness to Change	Traditional, Attached to Familiar	Open to Change, Experimenting
Q2	Self-Reliance	Group-Oriented, Affiliative	Self-Reliant, Solitary, Individualistic
Q3	Perfectionism	Tolerates Disorder, Unexacting, Flexible	Perfectionistic, Organized, Self-Disciplined
Q4	Tension	Relaxed, Placid, Patient	Tense, High Energy, Impatient, Driven

Five Global Factors of 16PF Personality

1. Extraversion

Extraversion is to orient around a general social participation. Extraverts tend to be people-oriented and to seek out relationships with others. While Introverts tend to be less outgoing and sociable; they tend to spend more time in their own company. Extraversion includes interpersonal of Warmth (A+), Liveliness (F+), Social Boldness (H+), Forthrightness (N-), and the need to affiliate with other people called Group-Orientation or self-reliant (Q2+).

2. Anxiety

Anxiety has been described since an early studies of personality began and continues to be described in the studies of "big five" dimension of personality. Anxiety can be aroused in response to external events, or it can be internally generated. Anxious people often experience more negative effect, they may have difficulty controlling their emotions or reactions and may act in counterproductive ways. Anxiety includes a tendency to be Reactive (C-), distrustful and Vigilant (L+), worrying and Apprehensive (O+), Tense (Q4+).

3. Tough-Mindedness

A person who scores high on this factor is described as alert and tending to deal with problems at a dry cognitive level. Tough-minded people tend to be reserved (A-),

Utilitarian (I-), Grounded (M-), and Traditional (Q1-). Extremely tough-minded people may portray a sense of being "established," they may not be open to other point of view, to unusual people, or to view experiences.

4. Independence

Independence includes tendencies to be Dominant (E+), Socially Bold (H+), Vigilant L+), and Openness to Change (Q1+). Independent people tend to enjoy trying new things and exhibiting an intellectual curiosity. They also have a strong element of social forcefulness. Independent people tend to form and to express their own opinions. They often are persuasive and forceful, silting to challenge the status quo, and suspicious of interference from others. Independent people may be uncomfortable or ineffective in situations that involve accommodating other people.

5. Self Control

A high scorer of self-control tends to be able to inhibit their impulses and may do so in several ways. For example, self-controlled people can be Serious (F-), Rule-Conscious (G+), Practical and Grounded (M-), and or Perfectionist (Q3+).

The 16PF Personality Test

Example Questions

ExX. I often like to watch team games.

    a. true
    b. ?
    c. false

ExY. I prefer friends who are:

    a. quiet
    b. ?
    c. lively

(As abstracted from the test book p. 3)

Example Questions.

ExZ. Adult is to child as cat is to:

    a. kitten
    b. dog
    c. baby

(As abstracted form the test book p. 14)

Note: From the 16PF Questionnaire (5th edition) p. 3 and p. 14
    By R. B. Cattell, A. K. S. Cattell, & H. E. P. Cattell
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The COPS-P Occupational Clusters

SCIENCE, Medical-Life occupations involve activities concerned with the conducting of research and the accumulation and application of systemized knowledge in medicine and the biological and life sciences.

SCIENCE, Physical occupations involve activities concerned with the planning and conducting of research and the accumulation and application of systemized knowledge of the physical world in the earth sciences.

TECHNOLOGY, Electrical occupations involve engineering and systems design in the fields of electricity and electronics.

TECHNOLOGY, Mechanical occupations involve activities concerned with engineering and structural design of aircraft, automotive, marine and other mechanical equipment and the development of new and improved mechanical and chemical manufacturing processes for converting raw materials into products.

TECHNOLOGY, Civil-Construction occupations involve activities concerned with the structural design for construction of buildings, highways and other transportation systems.

OUTDOOR, Nature occupations involve activities performed primarily out-of-doors which are concerned with the protection, accumulation and harvesting of natural resources.

OUTDOOR, Agribusiness occupations involve activities performed primarily out-of-doors which are concerned with the growing, tending and harvesting of plants and animals for human consumption.

BUSINESS, Finance occupations involve activities concerned with the control of monies and accounting for the finances of large businesses and government bureaus.

BUSINESS, Management occupations involve activities concerned with the organization, direction and administration of the operation of large businesses and government bureaus.

COMPUTATION occupations involve activities concerned with statistical analysis and use of mathematics and computation in research and business.

COMMUNICATION, Written occupations involve activities concerned with skill in the use of written language especially in the creation or interpretation of literature and the written communication of knowledge and ideas.

COMMUNICATION, Oral occupations involve activities concerned with skill in the use of spoken language and the oral interpretation and communication of knowledge and ideas.

ARTS, Performing occupations involve activities concerned with the individualized expression of creative or musical talent.

ARTS, Design occupations involve activities concerned with the individualized expression of creative talent in fine arts and design.

SERVICE, Instructional occupations involve activities concerned with the instruction of techniques in interpersonal relations especially in caring for the personal needs and welfare of others in the field of education.

SERVICE, Social-Health occupations involve activities concerned with interpersonal relations in caring for the personal needs and welfare of others in fields of social service and health.

Appendix A 5

The COPS-P Work Interest Questionnaires

L I d D

1. Remove teeth and perform oral surgery   L I d D

2. Conduct chemical research in an industrial laboratory   L I d D

3. Transmit information within an electronic circuit   L I d D

4. Discover additives that improve the adhesive properties of glue   L I d D

5. Direct construction of a water treatment plant   L I d D

6. Travel by boat or horse to assure that people taking fish and game are not endangering the species   L I d D

7. Take a sample of a human tumor to test for cancerous cells   L I d D

8. Experiment with hybrid plants   L I d D

9. Trace and correct problems in a computer circuit   L I d D

10. Specialize in the design and development of aircraft structural components   L I d D

11. Engineer a traffic exit near a school or hospital   L I d D

12. Ride horseback through rough terrain to locate natural resources   L I d D

13. Cut open a chest cavity to implant a device to maintain life   L I d D

14. Study the effect of chemicals on plants and animals   L I d D

L I d D

15. Work on designing computer chips   L I d D

16. Improve the performance of a tennis racquet   L I d D

17. Construct a highway interchange   L I d D

18. Walk through a redwood forest to estimate timber production   L I d D

19. Deliver babies in a hospital   L I d D

20. Study earthquake faults to predict future quakes   L I d D

21. Develop a semiconductor chip that will operate at extremely high temperatures   L I d D

22. Make a model of an economically feasible solar car   L I d D

23. Inspect a new building to see that it meets engineering code requirements   L I d D

24. Develop procedures to rescue distressed mountain climbers   L I d D

25. Perform surgery on animals   L I d D

26. Use a telescope to study movement of planets   L I d D

27. Create electronic components for computers   L I d D

28. Improve the hitting performance of a baseball bat   L I d D

29. Direct building of artificial canals and mains to transport water   L I d D

Appendix A 6

Description of Eight Work Values Dimensions

1. Investigative vs. Accepting

Persons scoring high on the first scale (investigative) value activities in which they work to satisfy their curiosity, are mentally challenged and understand and interpret complex ideas. Persons scoring toward the Accepting value clear-cut activities in which they see the concrete result of their work and do not need to solve many complex problems.

2. Practical vs. Carefree

Persons scoring high on Practical value activities in which they take good care of their property, continually improve their abilities and work with things to make them more practical and efficient. Persons scoring toward the Carefree value activities where others take care of equipment and keep things in good working order.

3. Independence vs. Conformity

(Independence vs. Conformity), persons score high on Independence scale value activities in which they are relatively free of rules and regulations, work on their own without direction, and are not restricted by social obligations. Persons scoring toward the Conformity value working under careful supervision where clear directions and regulations can be followed.

4. Leadership vs. Supportive

Persons scoring toward leadership value activities in which they make the decisions for the group and are chosen as a leader or debater. Person scoring toward the supportive end value activities in which they can be a good follower and do not need to direct others or tell others what to do.

5. Orderliness vs. Non-Compulsive

Persons score high on this scale (orderliness) valuing activities in which they keep their things neat and tidy and do what they are expected to do. Persons scoring toward the Non-compulsive end value activities in which they can take things as they come and do not need to keep things orderly and neat.

6. Recognition vs. Privacy

Persons scoring high on this scale (Recognition) value activities in which they become well known and in which they looked up to by other people. Person scoring toward the Privacy end of this scale value keeping their activities private and are not concerned with receiving honors or being considered a famous person.

7. Aesthetic vs. Realistic

Persons scoring high on this scale (aesthetic) value activities in which they appreciate beauty and artistic skill, show artistic and emotional sensitivity, and appreciate music and the arts. Person scoring toward the realistic end of this scale value activities in which they do not rely on their senses or intuition and in which they are not involved with appreciation of artistic qualities.

8. Social vs. Self-Concern

Social vs. Self-Concern, Persons scoring high toward Social value activities in which they help people, the poor, and the needy, meet and get to know people, and are understanding of those who have difficulties or are in trouble. People scoring toward the Self-Concern end of this scale value activities in which they spend time on their own projects and tend to their own affairs rather than helping others.

Relationship between COPS-P Career Clusters and COPES Work
Values

WORK VALUES RELATED TO THE 14 WORK CLUSTERS		
1. SCIENCE, Professional	a. Investigative	c. Independence
2. SCIENCE, Skilled	a. Investigative	e. Orderliness
3. TECHNOLOGY, Professional	a. Investigative	b. Practical
4. TECHNOLOGY, Skilled	b. Practical	e. Orderliness
5. CONSUMER ECONOMICS	b. Practical	e. Orderliness
6. OUTDOOR	c. Independence	b. Practical
7. BUSINESS, Professional	d. Leadership	f. Recognition
8. BUSINESS, Skilled	d. Leadership	e. Orderliness
9. CLERICAL	e. Orderliness	b. Practical
10. COMMUNICATION	f. Recognition	e. Orderliness
11. ARTS, Professional	f. Recognition	g. Aesthetic
12. ARTS, Skilled	g. Aesthetic	e. Orderliness
13. SERVICE, Professional	h. Social	d. Leadership
14. SERVICE, Skilled	h. Social	b. Practical

Appendix A 8

The COPES Work Values Questionnaires

1. a) do tasks that are not too difficult and challenging
    b) always work on difficult and challenging tasks

2. a) work with ideas
    b) work with my hands

3. a) have a boss who is responsible for my work
    b) am my own boss

4. a) am in a position of authority
    b) don't have to exercise authority over others

5. a) do the approved thing
    b) do not have to be concerned about doing the approved thing

6. a) am a regular community member
    b) am "somebody" in the community

7. a) don't rely on my artistic skill
    b) use my artistic skill

8. a) usually don't go out of my way to help others
    b) go out of my way to help others

9. a) think a lot about difficult problems
    b) do not have to think a lot about difficult problems

10. a) keep my equipment in top condition
    b) don't h ave to worry about my equipment all the time

11. a) don't have to take orders from others
    b) take orders from others

12. a) have people work under my direction
    b) don't have to direct people

13. a) do what is polite and correct
    b) do what is practical to get the job done. Even if it is not polite

14. a) do things for myself
    b) impress people

15. a) have little to do with art exhibits
    b) visit art exhibits

16. a) usually tend to my own affairs
    b) go around doing favors for other people

17. a) do not have to do things in an outstanding way
    b) do things in an outstanding way

18. a) buy without worry too much about limits
    b) shop carefully

19. a) do what is considered morally right
    b) act on my own set of values

20. a) let others act as the speaker for the group
    b) act as the speaker

21. a) have only broad, general guidelines
    b) follow clear rules and regulations

22. a) am considered upper or upper middle class
    b) am considered middle class or lower

23. a) have enough time to appreciate paintings or sculptures
    b) use my spare time for other activities

24. a) take part in civic activities
    b) do not take an active part in civic activities

25. a) study difficult problems
    b) usually do not have to study difficult problems

26. a) work hard to make things more practical
    b) many things are already too practical

The Four Items of Selection/Recruitment Procedure

1. Academic performance	The grade point average of the high school level. As the bonded engineers were recruited before pursuing their undergraduate study, the high school academic result was taken into consideration in the selection and recruitment. Five subjects in the high school transcript were the criterion of recruitment which are, mathematics, physic, chemistry, English, and Malay language.
2. Aptitude test	To measure the potential cognitive ability of the candidate to learn in future. The test was designed and analyzed by a local psychologist, which consists of 156 questions testing the interest, the cognitive ability, and the creativity of candidates.
3. Extra-curricular activities	Measure how well the candidate adapted and socialized with people and other non-academic activities which mean the more the candidate involve in the non-academic activities the better the candidate in term of leadership, maturity, and so fourth.
4. Interview	To measure the candidate values, maturity, communication ability, and his/her perception toward the organization. To determine the most qualified person, it evaluates a person's values match to the organization's values.

Rank-Orderings in the Selection/Recruitment

Rank No. Order	I.D Number	Academic 45%	Aptitude 20%	Interview 20%	Ex-Curricular 10%	Total	Job Performance	Job Performance
1.	001	38	18	14.38	2.5	72.88	80.00	95.00
2.	002	30	20	14.5	3.9	71.4		86.70
3.	003	36	18	12.1	0.6	70.7	82.00	79.3
4.	004	32	18	12.75	2.8	70.35	48.00	72.00
5.	005	30	20	15.25	3.3	69.55	76.70	70.00
6.	006	30	12	14.4	2.0	63.4	83.75	79.00
7.	007	26	20	12.8	2.6	62.4	96.67	86.00
8.	008	37	10	11.97	2.1	62.07	67.00	74.60
9.	009	32	6	14.7	2.2	58.9	92.00	
10.	010	34	0	14.38	2.2	55.58	66.67	70.00
11.	011	24	8	14.0	2.4	55.40	70.00	82.00
12.	012	28	10	10.1	1.7	54.8	72.00	68.00
13.	013	24	8	13.5	3.5	52.00	59.00	80.00
14.	014	32	0	14.7	1.0	50.7	65.00	
15.	015	30	0	12.13	3.3	50.43	77.00	71.30
16.	016	30	0	12.75	0.9	48.33	76.00	80.00
17.	017	32	0	10.88	1.2	48.08	75.00	81.00
18.	018	30	0	10.88	1.0	46.88	63.50	66.70
19.	019	26	4	10.3	0.6	45.9	72.00	80.00

Description of Five Facets of Job Satisfaction

Facets of Job Satisfaction	Description
1. Satisfaction with Work	Concerns the employee's satisfaction with the work itself. The satisfaction literature has identified various attributes of work that may be related to satisfaction, including opportunities for creativity and task variety, allowing an individual to increase his or her knowledge, and changes in responsibility, amount of work, autonomy, job enrichment, and job complexity. Appears to be work that can be accomplished and is intrinsically challenging.
2. Satisfaction with Pay	Addresses attitude toward pays and is based on the perceived difference between actual pay and expected pay. Expected pay is based both on the value of perceived inputs and outputs of the job and the pay of other employees holding similar jobs or possessing similar qualifications. Influence by the personal financial situation of the employee, the economy, and the amount of pay an employee has received previously.
3. Satisfaction with Promotions	Satisfaction with promotions measures the employee's satisfaction with the company's promotion policy and the administration of that policy. It is thought to be a function of the frequency of promotions, an importance of promotions, and the desirability of promotions.
4. Satisfaction with Supervision	The supervision facet reflects an employee's satisfaction with his or her supervisor(s). In general, the more considerate and employee-centered supervisors are (e.g., praising good performance, taking personal interest in employees, providing feedback and listening to subordinates' opinions), the greater the levels of employee satisfaction with supervisors, the greater the supervisor's perceived competence on the job, the greater the levels of satisfaction with supervision.
5. Satisfaction with People on the Present Job	The facet concerning people on present job facet (People; often referred to as the co-worker facet) assesses the level of employee satisfaction with his or her fellow employees. The degree of satisfaction with co-workers is thought to be determined by the work-related interaction among co-workers and the mutual liking or admiration of fellow employees.

Job Descriptive Index

THE
JOB
DESCRIPTIVE
INDEX

(1997 Revision)

Company _____

City _____

Please fill in the above blanks and then turn the page...

Name.
~~Code~~ No. _____

Think of the work you do at present. How well does each of the following words or phrases describe your work? In the blank beside each word or phrase below, write

__Y__ for "Yes" if it describes your work

__N__ for "No" if it does NOT describe it

__?__ if you cannot decide

●●●●●●●●●●●●●●●●●●●●●●●●●●●●●

WORK ON PRESENT JOB

_____ Fascinating

_____ Routine

_____ Satisfying

_____ Boring

_____ Good

_____ Gives sense of accomplishment

_____ Respected

_____ Uncomfortable

_____ Pleasant

_____ Useful

_____ Challenging

_____ Simple

_____ Repetitive

_____ Creative

_____ Dull

_____ Uninteresting

_____ Can see results

_____ Uses my abilities

Think of the opportunities for promotion that you have now. How well does each of the following words or phrases describe these? **In the blank beside each word or phrase below, write**

__Y__ for "Yes" if it describes your opportunities for promotion

__N__ for "No" if it does NOT describe them

__?__ if you cannot decide

● ●

OPPORTUNITIES FOR PROMOTION

_____ Good opportunities for promotion

_____ Opportunities somewhat limited

_____ Promotion on ability

_____ Dead-end job

_____ Good chance for promotion

_____ Unfair promotion policy

_____ Infrequent promotions

_____ Regular promotions

_____ Fairly good chance for promotion

Think of the pay you get now. How well does each of the following words or phrases describe your present pay? **In the blank beside each word or phrase below, write**

__Y__ for "Yes" if it describes your pay

__N__ for "No" if it does NOT describe it

__?__ if you cannot decide

● ●

PRESENT PAY

_____ Income adequate for normal expenses

_____ Fair

_____ Barely live on income

_____ Bad

_____ Income provides luxuries

_____ Insecure

_____ Less than I deserve

_____ Well paid

_____ Underpaid

Think of the majority of the people that you work with now or the people you meet in connection with your work. How well does each of the following words or phrases describe these people? In the blank beside each word or phrase below, write

__Y__ for "Yes" if it describes the people you work with

__N__ for "No" if it does NOT describe them

__?__ if you cannot decide
• •

CO-WORKERS (PEOPLE)

_____ Stimulating

_____ Boring

_____ Slow

_____ Helpful

_____ Stupid

_____ Responsible

_____ Fast

_____ Intelligent

_____ Easy to make enemies

_____ Talk too much

_____ Smart

_____ Lazy

_____ Unpleasant

_____ Gossipy

_____ Active

_____ Narrow interests

_____ Loyal

_____ Stubborn

Go on to the next page . . . . .

Think of the kind of supervision that you get on your job. How well does each of the following words or phrases describe this? In the blank beside each word or phrase below, write

__Y__ for "Yes" if it describes the supervision you get on your job

__N__ for "No" if it does NOT describe it

__?__ if you cannot decide
• •

SUPERVISION

_____ Asks my advice

_____ Hard to please

_____ Impolite

_____ Praises good work

_____ Tactful

_____ Influential

_____ Up-to-date

_____ Doesn't supervise enough

_____ Has favorites

_____ Tells me where I stand

_____ Annoying

_____ Stubborn

_____ Knows job well

_____ Bad

_____ Intelligent

_____ Poor planner

_____ Around when needed

_____ Lazy

Go on to the next page . . . . .

Think of your job in general. All in all, what is it
like most of the time? **In the blank beside each
word or phrase below, write**

____Y____ for "Yes" if it describes your job

____N____ for "No" if it does NOT describe it

____?____ if you cannot decide

● ●

JOB IN GENERAL

_____ Pleasant

_____ Bad

_____ Ideal

_____ Waste of time

_____ Good

_____ Undesirable

_____ Worthwhile

_____ Worse than most

_____ Acceptable

_____ Superior

_____ Better than most

_____ Disagreeable

_____ Makes me content

_____ Inadequate

_____ Excellent

_____ Rotten

_____ Enjoyable

_____ Poor

Note: From the Job Descriptive Index (1997 Revision)
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Appendix A 13

Performance Assessment Form (Supervisor Rating)

PERFORMANCE MANAGEMENT FORM

1. Name of appraisee : _____

   a. Profession : _____

   b. Grade : _____

   c. Unit and Division : _____

2. Name of appraiser : _____

   a. Grade : _____

   b. Duration of supervision : From _____ To _____

Performance Standard

5   Exceptional Performance, consistently exceeds most job requirements and contributes outstanding achievements which significantly extend the impact of the total job.

4   Excellent performance; exceeds some job requirements and Achievements beyond normal exceptations of the job.

3   A well balanced performance; meets all jobs requirements. Achievements clearly meet the job demand.

2   Reasonable performance; only meet some of the job requirements. Requires significant performance improvement in areas.

| 1 | Unacceptable; fails to meet most job requirements. Consistently fails to meet expectations and standards. |

WORK TARGET	PERFORMANCE STANDARD	SCORE (Performance Standard X Weight)
	5	
	4	
	3	
	2	
Weight :	1	
	5	
	4	
	3	
	2	
Weight :	1	
	5	
	4	
	3	
	2	
Weight :	1	
	5	
	4	
	3	
	2	
Weight :	1	
	5	
	4	
	3	
	2	
Weight :	1	

	5	
	4	
	3	
	2	
Weight :	1	
Total Weights :		Total Weighted Score
	Total Weighted Score	

Performance Assessment Form (Peers/Subordinates Rating)

Nama Pegawai Yang Dinilai: _____
Nama Penilai : _____
Jawatan Penilai: _____
Tempoh Di bawah Seliaan: _____

Sila beri penilaian terhadap pegawai berkenaan dari segi perkara-perkara di bawah.
Penilaian anda berasarkan   5- Amat memuaskan **(Very Excellent)** 4- Memuaskan **(Excellent)**
3- Memadai **(Fair)** 2- Lemah **(Poor)** 1- Amat lemah **(Very Poor)**

1.   Pengetahuan dan kefahaman pegawai dari segi tugas secara menyeluruh (mengetahui operasi teknikal, peraturan pengurusan, dan tahap kualiti pengeluaran). **"the overall knowledge and understanding of work (technical operation, procedure management, and quality of production."**

5
4
3
2
1

2.   Kebolehan dalam pengurusan dan pengagihan tugas kepada anggota bawahan (keupayaan dalam mengurus anggota bawahan dan boleh mengagihkan kerja dengan baik dan diterima oleh anggota bawahan). **"Capability in managing and delegating work as to subordinates. Distributes job to subordinates."**

5
4
3
2
1

3.   Bersikap terbuka untuk mempelajari kerja dan mencari idea-idea baru bagi meningkatkan kualiti kerja. (Kemahuan merujuk kepada pegawai atasan, anggota bawahan dan sumber-sumber rujukan seperti buku, bulletin, dan lain-lain organisasi). **"openness to new experience and to learn about job. Being Creative toward improving the job quality."**

5
4
3
2
1

4.   Sikap tanggungjawab sepenuhnya terhadap kerja dan pegawai bawahan. Boleh membincangkan dan memberi pendapat yang membina mengenai urusan kerja. **"Full responsibility toward jobs and subordinates, openness to discussion and giving ideas pertaining to the jobs."**

5
4
3
2
1

5. Kemahiran berkomunikasi dengan pegawai atasan dan anggota bawahan secara jelas dan difahami (lisan atau bertulis). **"Capability in communication to the supervisor and subordinates."**

5
4
3
2
1

6. Kemampuan untuk menyelesaikan masalah kerja dalam keadaan terdesak. **"Capability in problem-solving even in a stressful situation."**

5
4
3
2
1

7. Menunjukkan minat yang mendalam terhadap kerja. Selahu berbincang secara positif mengenai tugas dengan pegawai atasan, rakan sejawat dan anggota bawahan. **"Shows high interest toward job and to discussion pertaining work."**

5
4
3
2
1

8. Kesediaan untuk menerima dan menyelesaikan tugas selepas di luar waktu kerja termasuk harihari kelepasan. Boleh dihubungi untuk menyelesaikan ursuan tugas pada bila-bila masa. **"Willingness to accept jobs even after working hours."**

5
4
3
2
1

9. Mempunyai kreativiti yang tinggi. Sentiasa berfikir dan bertindak menghasilkan idea-idea yang bertujuan meningkatkan kualiti di tempat kerja terutamanya kerja teknikal. **"has a strong creativity thinking toward improving the work quality."**

5
4
3
2
1

10. Mengambil berat terhadap ketetapan waktu termasuk waktu kedatangan dan tempoh menyelesaikan kerja (diri sendiri dan anggota bawahan). **"Seriousness toward punctuality."**

5
4
3
2
1

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The Demographic Questionnaires

Please fill-out the information below:-

1. Name: _____   2. Age: _____

3. Sex: _____ 4. Marital Status: _____

5. Profession: _____

6. Department: _____

7. Office Address: _____

    _____

8. Year of Service: _____

9. Grade: _____

10. Characteristic of current Job (percentage) Technical   : _____

                                                Management: _____

                                                Other   : _____

                                                Total   :   100%

11. Salary: _____

ACADEMIC BACKGROUND

1. Qualification: _____

2. Name and address of Institution : _____

    _____

3. CGPA: _____

4. Two favorite subjects in school/college: 1. _____

                                              2. _____

Appendix B:

Tables

Table 1

Statistical Analyses for Working Hypothesis 1 Through 5

Hypothesis	Independent Variable	Dependent Variable	Analysis	Expected Result
1.	P.O. fit (demand-Abilities Fit) - Self-control (a) - Extraversion (b) - Independence (c)	Job Performance - Supervisor Rating - Peers/subordinates rating.	Pearson r	Positive correlation
2.	P. O fit (Demands-Abilities Fit) - Anxiety (d) - Tough-mindedness (e)	Job Performance - Supervisor Rating - Peers/Subordinate rating	Pearson r	Negative correlation
3.	P.O. fit (Demands-Abilities) - Rank - Order Recruitment Score (f)	Job Performance - Supervisor Rating - Peers/Subordinate rating	Kendall's Correlation	Positive correlation
4.	P. J. fit (Needs-Supplies Fit) - Technology, Electrical (g) - Technology, Mechanical (h) - Technology, Civil (i) - Computation (j)	a. Job Performance - Supervisor Rating - Peers/Subordinate rating	Pearson r (Partial)	Positive correlation
	P. J. fit (Needs-Supplies Fit) - Technology, Electrical (g) - Technology, Mechanical (h) - Technology, Civil (i) - Computation (j)	b. Satisfaction of - work on present job - Present pay - Opportunities for promotion - Supervision - Co-workers (people) - Job in general	Pearson r (Partial)	Positive correlation
5.	P.J. fit (Needs-Supplies) - Practical (k) - Orderliness (l) - Investigative (m)	a. Job Performance - Supervisor Rating - Peers/Subordinate rating	Pearson r (Partial)	Positive correlation
	P.J. fit (Needs-Supplies) - Practical (k) - Orderliness (l) - Investigative (m)	b. Satisfaction of - work on present job - Present pay - Opportunities for promotion - Supervision - Co-workers (people) - Job in general	Pearson r (Partial)	Positive correlation

Notes:
Hypothesis 4 and 5 were analyzed by Partial Correlation controlling for variable of Job Characteristic (high technical and low technical job).

Table 2

Demographic Information of Participants

	Participants		
	Number of Participants	Percentage	Mean
Gender			
- Men	76	72.2	
- Women	30	27.8	
- missing Values	3	2.8	
Profession			
- engineers	76	72.2	
- system analysis	10	9.3	
- computer analyst	7	6.5	
- technical executives	10	9.3	
- missing values	3	2.8	
Job Characteristic			
- very highly technical	10	9.4	
- highly technical	47	44.3	
- low technical	26	24.5	
- very low technical	20	18.9	
- missing values	3	1.9	
Place of Study (university)			
- Malaysian	52	48.1	
- Overseas	48	44.5	
- missing values	6	3.8	
Age			27.8

Table 3

Relation between Big-Five Global Factors and 16PF Five
Factors Model

The 16 PF Five Global Factor	The Big-Five Model	Correlation
Anxiety (AN)	Neuroticism	Negative (-)
Extraversion (EX)	Extraversion	Positive (+)
Tough-mindedness (TM)	Openness to Experience	Negative (-)
Independence (IN)	Extraversion	Positive (+)
Self-Control	Conscientiousness	Positive (+)

Table 4

Mean, Standard Deviation, and Correlation between Five

Personality Factors and Job Performance

Personality Factors	Job Performance 1				Job Performance 2		
	$\overline{X}$	SD	R		$\overline{X}$	SD	r
Anxiety	5.3	1.3	-.12		5.3	1.3	-.16
Extraversion	5.1	1.6	.06		5.2	1.6	.12
Independence	5.6	2.0	.00		5.8	2.1	.25*
Self-control	5.0	1.1	.20†		5.1	1.1	.23†
Tough-mindedness	6.4	1.3	-.02		6.4	1.2	-.01

Note: Job Performance 1 (N=43)   Job Performance 1 = Supervisor Rating
       Job Performance 2 (N=44)   Job Performance 2 = Peers/Subordinates Rating

* P<.05
† P<.10

100

Table 5

Mean, Standard Deviation, and Correlation between

Selection/Recruitment Scores and Job Performance

	MTP1	MTP2	MTP3	MTP2		
	$\overline{X}$	SD	r	$\overline{X}$	SD	r
1) Job Performance I						
Academic Achievement				33.2	6.5	.08
Aptitude Test				8.3	7.2	.17
Extra-Curricular				1.8	1.0	.02
Interview Score				12.8	2.0	.30
Total Recruitment			.05	56.0	9.3	.25
Rank-Orders Score				28.4	16.2	-.21
2) Job Performance 2						
Academic Achievement				32.7	6.8	-.06
Aptitude Test				8.7	7.5	.27
Extra-Curricular				1.9	1.1	.03
Interview Score				12.5	1.9	.25
Total Recruitment			.16	55.9	10.3	.20
Rank-Orders Score				28.4	16.2	-.31

Note:

Job Performance 1 (N) = 25   Job Performance 1 = Supervisor rating
Job Performance 2 (N) = 22   Job Performance 2 = Peers/Subordinates Rating
Rank-orders Score (N) = 18

[MTP1, MTP2, MTP3] (N) = (43) Job Performance 1
                      = (47) Job Performance 2

Table 6

Correlation between Work Interest and Values Preference and

Job Performance and Job Satisfaction

	Job Performance			Job Satisfaction					
	1	2		1	2	3	4	5	6
Work Interest									
1) Computation	.27*	.09		-00	-.02	-.04	-.19	.00	-.10
2) Technology (civil)	.27*	.06		-.04	.14	.15	.09	.17	.17
3) Technology (electrical)	.25*	.18		.12	.07	-.07	-.17	.03	.04
4) Technology (mechanical)	.25*	.05		.08	.09	.12	.08	.18	.23*
Work Values									
1) Investigative	.16	.23*		.07	.05	.04	-.02	.04	.17
2) Orderliness	.26*	.06		.00	.07	.29*	.07	.17	.10
3) Practical	-.24*	-.16		-.17	-.09	-.11	.02	-.04	-.23*

Note:

      Job Performance 1 (N) = 43   Job Satisfaction
      Job Performance 2 (N) = 41   1 = Present Job; 2 = Job in General
      Job Satisfaction (N)   = 67   3 = Pay; 4 = Promotion
                            5 = Co-worker; 6 = Supervision

                               Job Performance 1 = Supervisor Rating
                               Job Performance 2 = Peers/Subordinates Rating

*P< .05

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