

Chapter 2

Literature Review And Related Theories

This chapter of the research study seeks to critically review the literature on Data Envelopment Analysis and Stochastic Frontier Analysis which can be used to measure operational efficiency and understand its importance in the wider context of operational research. In addition to this, chapter two will also look at Organizational Behavior theories that pertain to job satisfaction. The keywords used to search the literature were: Operational Efficiency; Data Envelopment Analysis; Organizational Behavior; Job Satisfaction; Motivation and Job Performance.

2.0 Operational Efficiency Defined

Looking at operational efficiency from a broad perspective it can be defined as the;

“minimization of waste and maximization of resource capabilities, in order to deliver quality products and services to customers. Operational efficiency is concerned with identifying wasteful processes and resources that drain the organization's profits. operational efficiency is also concerned with designing new work processes that improve quality and productivity”(Varadan, 2010).

However, given that this research is focused purely on Non-Governmental Organizations (NGOs), which on the most part are non-profit, it is important to define operational efficiency in this context. Efficiency can be defined as the “success with which an organization uses its resources to produce outputs – that is the degree to which the observed use of resources to produce outputs of a given quality matches the optimal use of resources to produce outputs of a given quality” (Provision, 1997). Operational efficiency is comprised of technical efficiency, allocative efficiency and cost efficiency.

Technical efficiency refers to the ability of a firm to produce maximum output given its inputs (Oleg Badunenko 2005). In other words, technical efficiency is the conversion of physical inputs (such as the services of employees and machines) into outputs at the optimal level.

Allocative efficiency refers to whether inputs, for a given level of output and set of input prices, are chosen to minimize the cost of production, assuming that the organization being examined is already fully technically efficient (Provision, 1997).

Finally Cost efficiency is achieved when both technical and allocative efficiency are combined. This means that an organization will only be fully cost efficient if it is both technically and allocatively efficient (Provision, 1997).

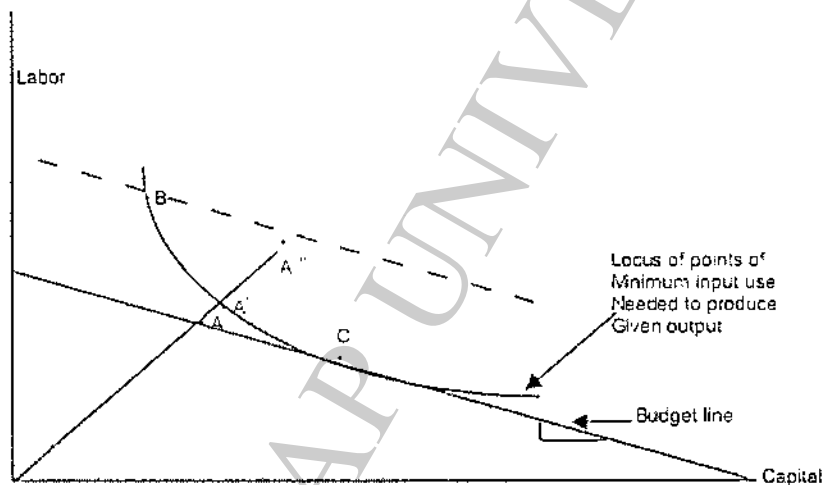


Figure 2.1 Illustration of different efficiency concepts

Source: (Provision, 1997)

These concepts are best depicted graphically, as in Figure 2.1 which plots different combinations of two inputs, labour and capital, required to produce a given output quantity. The curve plotting the minimum amounts of the two inputs required to produce the output quantity is known as an isoquant or efficient frontier. It is a smooth curve representing theoretical best engineering practice. Producers can gradually change input combinations given current technological possibilities. If an organisation is producing at a point on the isoquant then it is technically efficient (Provision, 1997).

Throughout the remaining study, every time the researcher refers to efficiency it should be understood as technical efficiency as this is what the researcher intends to focus on throughout this study.

2.1 Comparison of Efficiency Measuring Techniques

There are several techniques to measure efficiency in organizations, the most frequently used approaches can be classified into two groups; 1) Parametric Approaches and 2) Non-Parametric Approaches.

Parametric approaches generally take into consideration the residual term and also specify functional form (Mohammad, 2005). There are numerous parametric approaches including SFA, Distribution Free Approach (DFA) and Thick Frontier Approach (TFA). However, for the purposes of this study the researcher focused only on the Stochastic Frontier Approach.

2.1.1 Stochastic Frontier Approach

The Stochastic Frontier Approach specifies a functional form of the cost, profit or production relationship among inputs, outputs and environmental factors and allows for random error (Mohammad, 2005). SFA provides a composed error model where inefficiencies are assumed to follow a symmetric distribution. In other words in SFA "the inefficiencies must have a truncated distribution because inefficiencies cannot be negative" (Mohammad, 2005). This approach makes it difficult to separate inefficiency from random error in a composed error framework.

Non-parametric approaches on the other hand “put relatively little structure on the specification of the best practice frontier” (Mohammad, 2005). Following is a description of the Data Envelopment Approach.

2.1.2 Data Envelopment Approach (DEA)

Data Envelopment Analysis (DEA) which is also known as frontier analysis was first put forward in 1978 by Charnes, Cooper and Rhodes. DEA is a linear programming-based technique that is used for evaluating the performance of administrative units. Examples of decision-making units (DMUs) to which DEA has been applied in the past include; banks, police stations, hospitals, tax offices, schools, insurance companies, libraries and university departments (Mantri, 1965).

To be more precise, DEA is a non-parametric estimation method which involves the application of mathematical programming to observed data to locate a frontier that can then be used to evaluate the efficiency of each of the organizational units responsible for the observed output and input quantities (Goncalves, 2006).

2.1.3 Evaluation of Relative Strengths of DEA and SFA

In order to solve the problem of selecting a specific technique to measure efficiencies in the NGO sector in Chiang Mai, the relative strengths of both SFA and DEA were reviewed based on other researches that have used these two approaches. This shed some light on what was the better approach to use for this particular study.

Numerous studies have been conducted to evaluate the efficiencies of various organizations in various sectors. In 1995 Cao estimated technical efficiency by using SFA which resulted in overestimated output, and capital use, this lead to inaccurate technical efficiency estimates. Favero and Papi in 1995 also faced similar problems in using the parametric approach because they found they had to specify the form of production function arbitrarily. Moreover, stochastic frontier analysis can easily deal with multiple inputs but is not able to deal with multiple outputs which DEA is able to handle easily (Mohammad, 2005).

Furthermore, Emilio Martín in 2003 conducted a Data Envelopment Analysis on various departments in Zaragoza University, Spain and found “that this method is especially adequate to evaluate the efficiency of non-profit entities that operate outside the market, since for them the measures of efficiency such as income and profitability do not work satisfactorily. Two

main reasons being that these entities are not focused on obtaining profits, and the main source of finances does not come from the sale of goods and services” (Martin, 2003).

In DEA, the relative efficiency of a DMU (Decision Making Unit) is defined as the ratio of the total weighted output to the total weighted input. If the homogeneity is maintained, the outputs and inputs can be expressed in any unit of measurement (Martin, 2003). “In contrast to the traditional parametric production function, where a specific predefined functional form is assumed to apply each observation, DEA makes no assumptions about the form of the production function. The actual inputs and outputs observed are used to estimate a benchmark production frontier. For this reason, the efficiency indicator obtained is relative, since it is elaborated by referring to the rest of the DMUs” (Martin, 2003).

It can be concluded that non-parametric techniques are better than parametric in measuring efficiency in two ways. Berger and Humphrey (1997) claim that DEA 1) allows individuals with very little institutional knowledge or experience to select ‘best practice’ firms within an industry, assign numerical efficiency values, and broadly identify over use of inputs and/or outputs. 2) DEA identifies the efficient peers for the efficient firms and objectively determines the productivity improvements. As such, it is a valuable benchmarking tool for management that can become a part of a continuous improvement program (Mohammad, 2005). “It urges the desire to see how efficiency is related to apparent characteristics of the firm and it evaluates individual units instead of groups of units or organizations.

Given that this study is primarily focusing on non-profit entities the researcher decided to pursue the Data Envelopment Approach in order to obtain results that provide a clear picture of technical efficiency of NGOs in Chiang Mai.

2.1.4 Data Envelopment Analysis Concept

It is important to note that DEA generally focuses on technical or productive efficiency instead of focusing on economic or cost efficiency. As mentioned earlier, technical efficiency focuses on levels of inputs relative to levels of outputs. “To be productively efficient, a firm must either maximize its outputs given inputs or minimize its inputs given outputs” (Goncalves, 2006).

One major advantage of DEA is that it can “handle multiple inputs and multiple outputs as opposed to other techniques such as ratio analysis or regression” (Mantri, 1965). Goncalves provides a good explanation how the DEA approach differs from regression approaches: “Instead of trying to fit a regression line through the center of the data, DEA “floats” a piecewise linear surface on top of the observations. The focus of DEA is on the individual observations in contrast to the focus on averages and estimation parameters associated with regression approaches. Because of this unique orientation, DEA is particularly adept at uncovering relationships that remain hidden from other methodologies” (Goncalves, 2006).

Goncalves highlights the fact that the focus of DEA is on individual observations and each observation is evaluated by comparing its performance with the best performing units of the sample. The best performing units lie on the frontier or in other words, create the frontier. All other observations are ‘enveloped’ by the frontier (see Figure 2.1). A ‘best performing’ unit is the set of management and work practices which results in the highest possible potential or optimal quantity and combination of outputs for a given quality and combination of inputs (productivity) for a group of similar organizations (Provision, 1997). Therefore, by using the best performing units as benchmarks each observation can be assessed and recommendations can be made as to how to improve the efficiency of a particular observation.

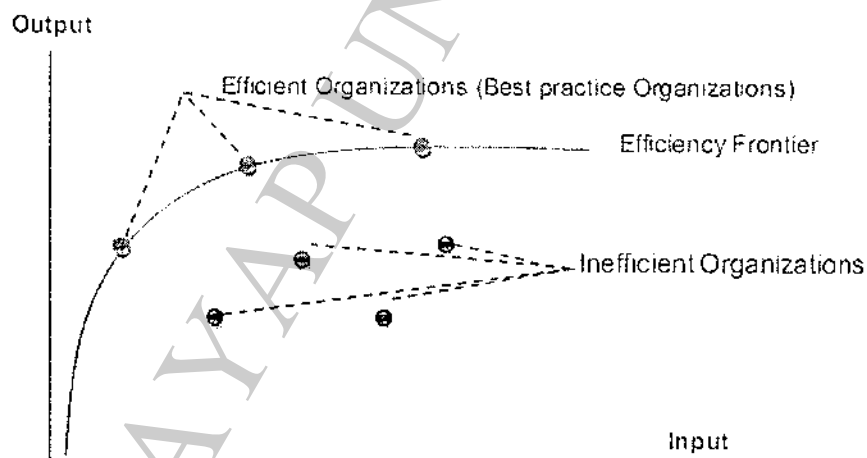


Figure 2.2 Graphical depiction of DEA

2.1.5 Benefits of DEA

Goncalves believes that "DEA has proven to be a valuable tool for strategic, policy, and operational problems, particularly in the service and nonprofit sectors" (Goncalves, 2006). With this in mind, the researcher provides a detailed look at the usefulness of DEA.

The most important benefit of DEA in measuring efficiency is that it is able to apply multiple inputs and multiple outputs to calculate efficiency. This is important because the only information required is that of the output and input quantities not prices. In turn, this is a very suitable analysis for measuring efficiency of service providers. For organizations such as NGOs it can be difficult or impossible at times to assign prices to many of the outputs (Provision, 1997).

Secondly, DEA allows individuals with very little institutional knowledge or experience to select 'best practice' firms within the industry, assign numerical efficiency values, broadly identify over-use of input and/or output and these results can be used for improving the organization and also for academic research purposes (Mohammad, 2005).

Thirdly, "by identifying the 'peers' for organizations which are not observed to efficient, it provides a set of potential role models that an organization can look to, in the first instance, for ways of improving its operations. This makes DEA a potentially useful tool for benchmarking and change implantation programs"(Provision, 1997).

2.1.6 Limitations of DEA

However, since DEA is an empirical technique it is based on a number of simplifying assumptions that must be acknowledged when interpreting the results. "It should be noted that DEA is primarily a diagnostic tool and does not prescribe any reengineering strategies to make inefficient units efficient. Such improvement strategies must be studied and implemented by managers by understanding the operations of the efficient units" (Talluri, 2000).

Firstly, "being a deterministic rather than statistical technique, DEA produces results that are particularly sensitive to measurement error. If one organization's inputs are understated or its outputs overstated, then that organization can become an outlier that significantly distorts the shape of the frontier and reduces the efficiency scores of nearby organizations" (Provision, 1997). In regression techniques, the presence of error terms in the estimation tends to

discount the impact of outliers but unfortunately this is not the case with DEA as “they are given equal weight to that of all other organizations” (Provision, 1997).

Secondly, DEA can only measure efficiency that is relative to the best practice organization within that particular sample. “It is not meaningful to compare the scores between two different studies because of differences in best practice between the samples is unknown” (Provision, 1997).

Thirdly, “DEA scores are sensitive to input and output specification and the size of the sample. Increasing the sample size will tend to reduce the average efficiency score, because including more organizations provides greater scope for DEA to find similar comparison partners” (Provision, 1997). On the other hand, including too few organizations will artificially inflate the efficiency scores.

2.2 Studies of Job Satisfaction

Exploration of the job - satisfaction relationship began in the early-1920's (Kornhauser, 1944) and today, more than 90 years later, efforts are still being made to understand and improve employee job satisfaction.

In organizational research job satisfaction has sometimes been treated as an operational element, but it is widely understood to be an attitude (Weiss, 1996; Judge, 2001; Wright, 2006). Today, with literally more than 10,000 published studies (Spector, 1997; Wright 2006); job satisfaction still holds great interest in organizational research and in the management sciences. This keen interest stems from the belief that job satisfaction reflects employee performance (Wright, 2006).

Spector (1997) suggests three reasons for why such importance is placed on job satisfaction: Firstly, the humanitarian perspective necessitates that all people deserve to be treated fairly and with respect in the workplace (Rowden, 2005). Secondly, the utilitarian perspective insinuates job satisfaction affects employee behaviour which directly impacts overall performance of the organization (Rowden, 2005). Thirdly, Spector (1997) believes that job satisfaction is indicative of the quality of the organization's performance. Though Spector (1997) has outlined three separate reasons for this importance, it is possible the two latter reasons are interlinked in a causal relationship that works in two directions (Rowden and Conine J.R, 2005). For example, employees in NGOs with low job satisfaction may be

inclined to take more sickness or absence leave and have little to show in job performance and productivity.

2.3 Job Satisfaction Job Performance and Motivation

Job satisfaction is a multifaceted concept: closely related to motivation and a contributory factor in improved performance in the workplace. Employees whose needs are satisfied and expectations are met will generally be more productive in their work. David Brown adds to this by illustrating that motivation, job satisfaction and job performance hold mutual benefit for the organization, the customers and the employees (Brown, 2007). For NGOs like all other organizations it is imperative that employees are continually improving performance and productivity in promoting social, economic, and environmental well-being to their service-users. In addition to this the employees want to know that their employers have their best interests in mind in the way of benefits and training.

2.4 Job Satisfaction and Motivation

The term *motivation* is derived from the Latin word *movere*, meaning "to move." Motivation can be broadly defined as the forces acting on or within a person that cause the arousal, direction, and persistence of goal-directed, voluntary effort. Motivation theory is thus concerned with the processes that explain why and how human behavior is activated (Barnet, 2007). It is also affected by extrinsic factors such as rewards, recognition, affirmation and praise. Motivation can be understood as an internal and or external drive that creates an interest and a determination to pursue a particular action (Daft, 2000). Terrance Mitchell describes motivation as the "psychological processes that cause the arousal direction and persistence of voluntary actions that are goal-related" (Mitchell, 1982). In essence, the basic underlying question is "why do people do what they do" (Mullins, 2002). This question is especially pertinent to looking at long term volunteer workers in NGOs.

A wide range of theories exist to explain the true nature of motivation. However, "the search for a generalized theory of motivation at work appears to be in vain" (Mullins, 2002). Motivation theories are most commonly classified as either content theories or process theories. Content theories seek to determine how specific needs of individuals motivate them in the workplace; process theories (or cognitive theories of motivation) focus on conscious human decision processes as an explanation of motivation. They are concerned with determining how individual behavior is energized, directed, and maintained in the specifically

willed and self-directed human cognitive processes and are based on early cognitive theories, which hypothesize that behavior is the result of conscious decision-making processes (Barnet, 2007). Some of today's core motivation theories are the content theories of Maslow and Herzberg and the process theories of Vroom, Locke and Adam.

2.5 Maslow's Hierarchy of Needs Theory

Maslow's hierarchy of needs theory is based on the assumption that people have five basic needs which, on a sub-conscious level, they are continually seeking to satisfy. "These basic goals are related to each other, being arranged in a hierarchy of prepotency. This means that the most prepotent goal will monopolize consciousness and will tend of itself to organize the recruitment of the various capacities of the organism. The less prepotent needs are minimized, even forgotten or denied. But when a need is fairly well satisfied, the next prepotent ('higher') need emerges, in turn to dominate the conscious life and to serve as the center of organization of behavior, since gratified needs are not active motivators"(Maslow, 1943).

The five levels of hierarchy are physiological needs, safety needs, social needs, esteem needs and self-actualization needs. Maslow defines physiological needs to be the strongest and most basic biological needs of oxygen, water, food and shelter. Safety needs are on the next level and begin to dominate when the physiological needs are met. Social needs are made up of the need for love, social acceptance and a sense of belonging. When individuals "overcome [their] feelings of loneliness and alienation"(Simons, 1987) self actualization needs become apparent and they seek to establish self esteem, self confidence, self respect and respect from others around them. Maslow (1943) described self-actualization as the desire to become what one was created to be: "A musician must make music, an artist must paint, a poet must write, if he is to be ultimately happy. What a man *can* be, he *must* be".

Steers and Porter (Steers, 1991) indicate how Maslow's need hierarchy is useful in the workplace in Table 2.1.

Table 2.1: Application of Maslow's Need Hierarchy in the Workplace

NEEDS LEVELS	GENERAL REWARDS	JOB SATISFACTION FACTORS
1. Physiological	Food, water, sleep, sex	Pay, good working conditions
2. Safety	Safety, security, stability, protection	Safe working conditions, benefits, job security
3. Social	Love, affection, sense of belonging	Cohesive work group, friendly supervision, professional associates
4. Esteem	Self-esteem, self-respect, prestige, status	Social recognition, job title, high status job, feedback from the job itself
5. Self-actualization	Growth, advancement, creativity	Challenging job, opportunities for creativity, achievement in work, advancement in the organization

Source: Adapted from Steers and Porter (1991)

Whilst Maslow's theory does not necessarily help predict motivation or foresee an employee's behavior, it aids in identifying needs which can be used to influence job satisfaction and improve job performance (Wiley, 1997).

2.6 Herzberg's Two-Factor Theory

Frederick Herzberg condensed Maslow's hierarchy of needs into two distinct categories: hygiene and motivation. The *Hygiene* factors consisted of a set of extrinsic job conditions that included job security, wages, working conditions, company policies, benefits, quality of technical supervision and the quality of interpersonal relations in the workplace. According to Herzberg these factors were associated with dissatisfaction. If they were not acceptable, employees would be dissatisfied. However, if they were present in the work environment they did not lead to satisfaction or motivation, instead they simply lead to a "state of no dissatisfaction" (Whittington, 2005).

In contrast to the hygiene factors, Herzberg's *Motivation* factors included, "achievement, recognition, work itself, responsibility and advancement" (Borkowski, 2005) reflect "intrinsic job conditions" (Whittington, 2005) and are associated with satisfaction and or motivation in the workplace. Motivation factors lead to positive mental health and challenge people to improve, invest themselves in the organization and contribute to the organization's work environment. According to Herzberg, the absence of these factors does not lead to dissatisfaction. Rather, it leads to the lack of satisfaction. "The motivation factors are the

more important of the two sets of factors, because they directly affect a person's motivational drive to do a good job. When they are absent, the person is de-motivated to perform well and achieve excellence" (Nelson, 2006). Herzberg's two factor theory is depicted in Figure 2.3

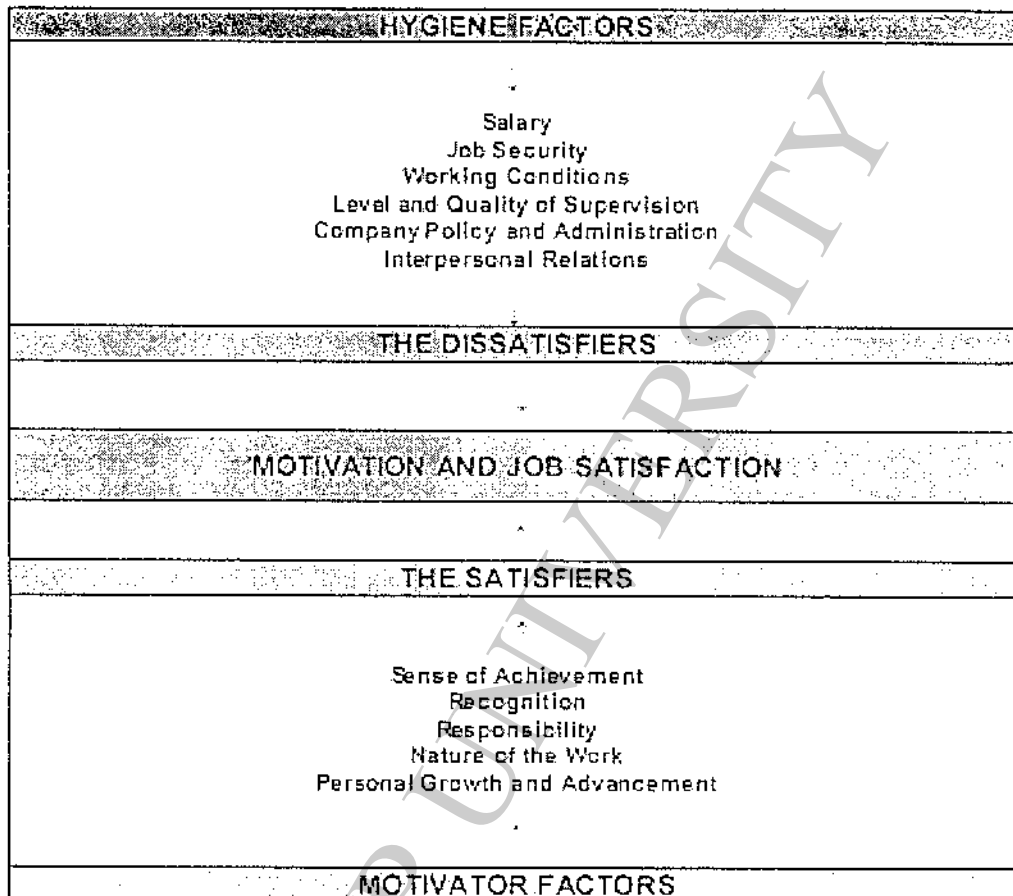


Figure 2.3: Representation of Herzberg's two-factor theory
Source: (Mullins, 2002)

2.7 Vroom: Expectancy Theory

Vroom's expectancy theory claims individual effort is directly related to desired outcomes and or performance in that "a person's motivation is a multiplicative function of expectancy, instrumentality and valence" (McCuddy, 2003). *Expectancy* is an individual's belief that their efforts will create a positive influence on their performance. *Instrumentality* is an individual's expectation their performance will reap positive outcomes and or rewards. *Valence* is the "value placed on a desired outcome or result" (Zillman, 2000). In summation, the expectancy theory is the value individuals place on the outcome and or reward that their efforts will

generate based on their level of performance. The relationship between expectancy, instrumentality and valence are depicted in Figure 2.4:

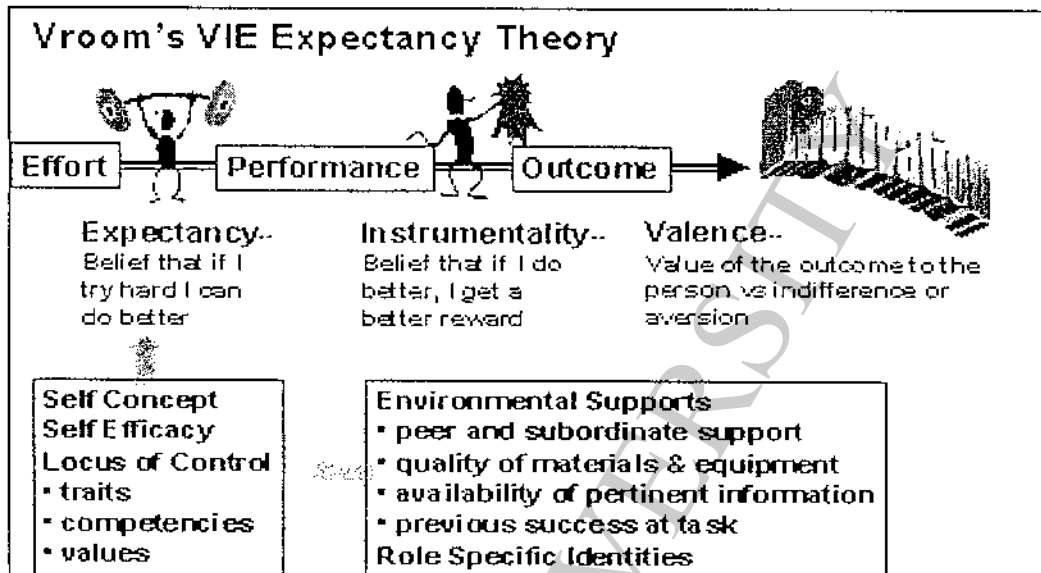


Figure 2.4: Vroom's Motivation Process

Source: (Scholastica, 2010)

Vroom's theory implies "work motivation is determined by individual beliefs regarding effort-performance relationships and work outcomes. It posits that motivation is a result of rational calculation" (Hunt, 2005). Rewards that create a need for high performance help motivate individuals to succeed in the workplace, just as rewards that are considered a waste of effort will de-motivate individuals (Zillman, 2000).

Vroom's theory however, does seem to have a large emphasis on individuality; "expectancy theory works on perceptions – so even if an employer thinks they have provided everything appropriate for motivation, and even if this works with most people in that organization it doesn't mean that someone won't perceive that it doesn't work for them...this model takes into account individual perceptions and therefore personal histories, allowing a richness of response not obvious in Maslow, who assume that people are essentially all the same" (Droar, 2003).

2.8 Goal Setting Theory

Goal setting theory is based on the notion that goals individuals hope to achieve help determine their individual behaviors. Locke reiterates the importance of 'value' as indicated by Vroom in the expectancy theory and suggests perceived values are based on one's emotions and desires (Mullins, 2002). He claims that individuals are driven to achieve their goals in order to satisfy their emotions and desires. These same goals guide their reactions and so direct their behavior and performance which lead to specific results. The level of commitment individuals have to attain their goals helps to manage and control their efforts (Mullins, 2002). An illustration of Locke's goal setting theory is depicted in Figure 2.5 below:

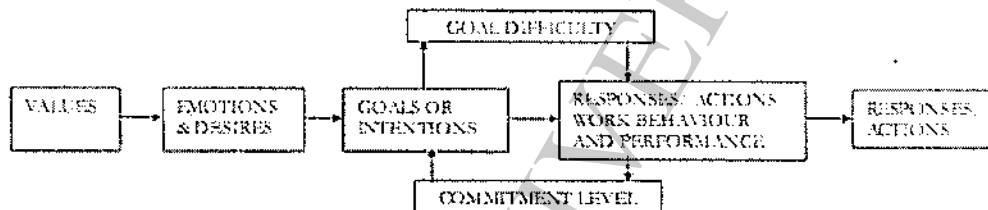


Figure 2.5 Representation of Locke's Goal Setting Theory

Source: (Mullins, 2002)

Mullins (2002) goes on to say that the "combination of goal difficulty and the extent of the person's commitment to achieving the goal regulates the level of effort expended. People with specific quantitative goals, such as a defined level of performance, or a given deadline for completion of a task, will perform better than people with no set goal or only a vague goal such as 'do the best you can'. People who have difficult goals will perform better than people with easier goals" (Mullins, 2002).

Locke's goal-setting theory on the whole is an accurate tool to measure motivation levels of employees within an organization. "...the majority of evidence suggests strong support for the theory, and its effects on motivation. Locke subsequently pointed out that 'goal-setting' is more appropriately viewed as a motivational technique rather than a formal theory of motivation" (Mullins, 2002).

2.9 Adam: Equity Theory

Adam's equity theory on job motivation looks specifically at the perceptions individuals have of how fairly they are being treated in comparison to their co-workers. It is based on the assumption that people in organizations want fair treatment and they gauge this 'fairness' in relation to their co-workers. Inequity, as opposed to equity, is the employees' belief that others are being favored over themselves.

The theory implies motivation comes from the perception of fair treatment and not the actual rewards. Perceived equity leads to greater employee motivation and perceived inequity motivates the employee to minimize the pressure created by it (Mullins, 2002). Adam's claimed six possible behaviors as reactions to perceived inequity: changes to input, changes to outcomes, cognitive distortion, leaving the field, acting on others and changing the object of comparison (Mullins, 2002). Adam's equity theory is depicted in figure 2.6 below:

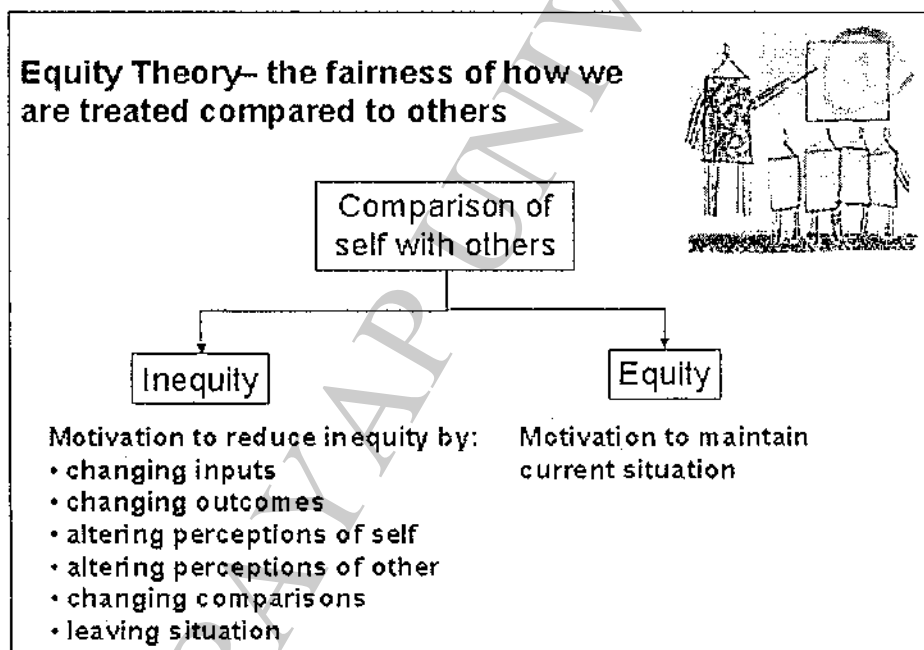


Figure 2.6: Adam's Equity Theory of Motivation

Source: (Scholastica, 2010)

Evidently, the theory claims that "people judge equity by comparing inputs (such as [their] education, experience, effort and ability) to outputs (such as pay, recognition, benefits and promotion)"(Graves, 2007). Motivation increases when there is an equitable balance between

inputs and outputs. Likewise, where an imbalance, or inequity, is perceived, employees will be motivated to act in ways that will eliminate their sense of unease and regain their sense of equity (Hunt, 2005) or positive equity, where they are receiving relatively more than their co-workers (McCuddy 2003). To do this they may change inputs (efforts), change outcomes (pay rise), alter their judgment and perhaps put greater emphasis on appreciation and possibly quit the job (Graves, 2007).

2.10 Linkage between Job-satisfaction and Motivation theories

It seems clear that job satisfaction and its implications are the result of its multifaceted nature and complex relations with organizations and its employees (Spector, 1985), the researcher chose to explore both the content and process theories of motivation to illustrate the causes and effects of job satisfaction. For example, pay, supervision, operating procedures and co-workers are mirrored in Herzberg's hygiene issues whilst contingent rewards, fringe benefits, the nature of the job and promotion are indicative of motivators. Adam's equity theory is also reflected in the attitudinal reactions of job satisfaction. The attitudes of employees reflect their perceptions and expectations of being treated fairly in areas of pay, promotion, fringe benefits, contingent rewards and so on.

2.11 Job Satisfaction

In most instances the literature recognizes job satisfaction to be an emotional response to a job or aspects of a job (Spector, 1985). In the 1970's, Locke coined what has come to be an exceptionally favorable and widely recognized definition of job satisfaction: "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences"(Locke, 1976). In essence, "job satisfaction is how people feel about their jobs and different aspects of their jobs" (Rowden, 2005).

Locke (1976) differentiates between the three main approaches to the causes of job satisfaction: first, the differences between what the person expects from the job and what the job offers; second, the extent to which a person's needs are met; third, the extent to which a person's wishes are met (Spector, 1985; Luthans, 1998).

Locke (1976) claims job satisfaction is a collection of attitudes towards particular aspects of the job. Likewise, Luthans (1998: 144) professed “job satisfaction represents several related attitudes”. Employees can be satisfied with some aspects of the job yet concurrently dissatisfied with other aspects of the same job. Some of these aspects or factors to which employees respond emotionally were identified by Luthans (1998) as: the work itself, pay, promotion opportunities, supervision and co-workers (Luthans, 1998).

In an online magazine, *Personnel Today*, Sally O’Reilly reported on the importance of the work environment on job satisfaction. Research carried out by the Commission for Architecture and the Built Environment “found that while 76% of staff satisfaction is linked to salary, technology, management and work-life balance, 24% is influenced by comfort, air quality, temperature, noise, lighting and office layout”(O’Reilly, 2007). Many HR managers are aware of this issue and strongly feel teamwork and the pooling together of resources to develop ideas is influenced by the design of the work environment (O’Reilly, 2007).

Evidently, current research suggests job satisfaction is made up of a mix of factors that together form an individual’s feeling about the job. Spector (1985) developed the Job Satisfaction Survey (JSS) by conducting a literature review of studies examining the various aspects of job satisfaction. After making a list of all the identified factors, nine of the most common and “conceptually meaningful” (Spector, 1985) factors were drawn out to act as an effective measure for job satisfaction as a whole. The nine factors chosen were: pay, promotion, supervision, fringe benefits, contingent rewards (appreciation, recognition and rewards for good work), operating procedures, co-workers, nature of work and communication (Spector, 1985).

2.12 Factors influencing Job Satisfaction

2.12.1 Pay

The correlation between level of pay and job satisfaction tends to be surprisingly small (Spector, 1997). Though pay is not a motivating factor (as seen in Herzberg’s two factor theory), employees do want to be paid fairly (Syptak, 1999) and use it as a gauge to understand how much value is being placed on their contributions (Luthans, 1998). The desire for fair treatment reflects Adam’s equity theory.

Findings from the 2006/2007 Employee Satisfaction and Retention Survey by Salary.com, Inc. showed similar results: “While pay is important, it isn’t everything ... employees rate good relationships with co-workers, managers and good working hours as the top factors that keep them in their current jobs” (Amble, 2007).

2.12.2 Promotion

Opportunities for promotion come in different forms with a range of rewards and so have a varied effect on job satisfaction (Luthans, 1998). Promotions in lower level positions tend to have a smaller accompanying salary raise in comparison to promotions in higher level positions. These differences accentuate how top management promotions may be more satisfying than lower level promotions (Luthans, 1998). Herzberg also indicated increased opportunities for advancement to serve as motivating and or satisfying factors.

2.12.3 Supervision

There are two contributory aspects of supervision on job satisfaction (Luthans, 1998). First, “employee-centered [supervision, which] is measured by the degree to which a supervisor takes a personal interest in the employee’s welfare” (Luthans, 1998). This supervision establishes open communication, provide regular feedback and ensure their availability to give advice and assistance.

Second is “participation or influence” (Luthans, 1998). Supervisors give employees freedom to be involved in decisions about their jobs.

2.12.4 Fringe Benefits

Fringe benefits are made available to employees over and above their pay. Fringe benefits include offers such as sick leave, annual leave, pension schemes, company cars, fuel reimbursements, paid travel and accommodation for business purposes etc.

Though important, fringe benefits do not greatly affect overall job satisfaction because of the difficulty found in determining their monetary value (Luthans, 1998). However, if employees are able to choose the benefits in their overall package there is a significant increase in their job satisfaction (Barber, 1992).

2.12.5 Contingent Rewards

Contingent rewards are an expression of appreciation and recognition for good work. For employees to feel valued for what they are bringing to the job they need genuine appreciation, whether their work is out of the ordinary or routine.

Appreciation is integral to an employee's job satisfaction. Drory and Shamir (Drory, 1998) claim appreciation has the strongest correlation with job satisfaction (Drory, 1998).

2.12.6 Operating Procedures

An organization's operating procedures reflect their set policies and procedures to enable optimal functioning. Where operating policies and procedures are perceived as rigid and burdensome employees sense less autonomy and participation in decision making and so experience low satisfaction. Unclear policies are an added aggravation that leads to dissatisfaction (Syptak, 1999). When operating procedures and policies encourage autonomy, ownership and participation, employees have greater job satisfaction.

2.12.7 Co-workers

"Friendly, co-operative co-workers or team members are a modest source of job satisfaction to individual employees" (Luthans, 1998). Being a part of a supportive and hard working team makes the job easier and more enjoyable (Luthans, 1998). Employees who have a strong sense of camaraderie with their team will more likely feel increased satisfaction.

On the other hand, where co-workers are perceived as unsupportive, uncooperative and unwilling to contribute, employees will have low satisfaction (Luthans, 1998).

2.12.8 Nature of Work

It is important for employees to feel that they work they are doing is something they are interested in and is something that is worthwhile to the organization. In particular, as Luthans (1998) points out, feedback from the supervisor and autonomy in the job has great impact on overall job satisfaction.

It is important for employees to feel the work they are investing themselves in is important and meaningful. Where employees are involved in jobs they perceive as routine and dull they will quickly lose interest and experience low job satisfaction.

2.12.9 Communication

When information, ideas and thoughts are continually being conveyed vertically from top management and horizontally between various parts of the organization employees are made to feel more aware and involved. Employees whose supervisors are attentive, open to ideas and involved in providing constructive feedback and guidance have greater job satisfaction (Downs, 1977). However, where communication is lacking and supervisors are perceived as unapproachable and untouchable employees feel devalued and experience low job satisfaction.

2.13 Conceptual Framework

The conceptual framework is designed to provide a logical line of thought through which the research study can be completed. Initially the researcher found theories that explained the characteristics of job-satisfaction. These characteristics were best observed through the following motivation theories:

- Maslow's Hierarchy of Needs theory
- Herzberg's Two-Factor theory
- Vroom: Expectancy theory
- Locke: Goal theory
- Adam: Equity theory

After studying these theories the researcher found Spector's Job Satisfaction Survey to be the most appropriate method to obtain the required data to measure job-satisfaction levels among International NGO employees in Chiang Mai. Spector's JSS uses a nine factor approach to evaluate an individual's overall perception of job-satisfaction and these nine factors are related to the motivation theories that were observed earlier. Once the data was obtained for each employee the JSS scores were quantified using Microsoft Excel in accordance with Spector's JSS analysis.

Parallel to studying the motivation theories the researcher found the latest methods being used to measure an organization's Technical Efficiency. The researcher found that the two most prominent types of approaches can be classified into two categories; 1) parametric approaches and 2) non-parametric approaches. These approaches are:

- 1) Stochastic Frontier Approach (SFA)
- 2) Data Envelopment Approach (DEA)

After thoroughly studying each approach the researcher chose to use the non-parametric approach (DEA) as it was best suited to the requirements of this particular study. The next step in fulfilling the requirements of DEA was to define inputs and outputs which would be used to determine technical efficiency of each organization. The inputs and outputs used are listed below:

Inputs:

- Labour (no. Of staff)
- Total Expenses (Budget)

Output:

- No. Of lives impacted

Once all the data was obtained from the NGOs the researcher used the DEA software to quantify the technical efficiency score for each organization.

After both the JSS and the technical efficiency scores had been acquired they were analyzed using SPSS to determine the nature of their relationship and to see whether there was a link between the job-satisfaction levels and types of NGOs. Lastly, the information gained from the SPSS analysis was then used to make recommendations and final conclusions regarding the study.

Figure 2.7 below explains the conceptual framework.

Figure 2.7 Relationships between TE and JSS

