# PROFIT SHARING IN A MANUFACTURING PLANT IN A DEVELOPING COUNTRY: COMMUNICATION AND ORGANISATIONAL DYNAMICS

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# Thesis Summary

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Profit Sharing in a Manufacturing Plant
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Organisational Dynamics

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The adaptation of profit sharing creates a fundamental change in employee compensation by making a portion of total compensation directly dependent upon the total profits of the firm and the performance of the employee. The major goal of this study is to test for and measure the impact of the independent variable, a profit sharing plan implemented at Shahvand Industrial Company, upon communication behaviour, communication outcomes, and organisational outcomes as dependent variables. A quasi-experimental non-equivalent control group design with pre and posttest was the research design used to test the effects of profit sharing participation on permanent-part-time operative employees implemented by SIC.

Several conclusions were reached as a result of the statistical analysis of the data collected in this study. Overall, few of the hypothesised effects of profit sharing participation appeared to have been realised according to the empirical results of this study. The finding that certain communication behaviours were more favourable for profit sharing participants than for non-participants support the general hypothesis of the integrated profit sharing model. The observed changes in communication behaviours indicate that information sharing and idea generation are important components of the profit sharing process. The results of this study did not reveal any changes in either communication or organisational outcomes.

A significant finding of this study is that the implementation of profit sharing plans require a relatively long period of time. Patience is required to achieve high levels of success and management must make long-term commitment to profit sharing.

Findings of this study should be interpreted with caution, taking into consideration that most of the previous researches on profit sharing have been conducted in Western European or American countries, while the current study was based on data collected from an organisation in a developing country. This implies that the findings reported in this thesis may not be comparable in certain respects to results derived from companies in major industrialised economies.

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# Chapter 1

# INTRODUCTION

## Statement of the Problem

Profit sharing is an organisation-wide approach to enhancing organisational effectiveness through a system of employee involvement and financial bonus (White, 1979). The adoption of a profit sharing contract creates a fundamental change in employee compensation by making a portion of total compensation directly dependent upon the total profit of the firm, and therefore, at least in part on the performance of the employees. Profit sharing potentially augments productivity by affecting motivational variables which influence work effort.

Profit sharing contracts are fundamentally different from traditional wage contracts in which an employee's compensation is not dependent upon performance except in regard to promotion and layoff. It is the fastest growing non-traditional pay for performance system with 26 per cent of companies in the United States using profit sharing plans (Kruse, 1993). Profit sharing is one of the most under researched human resource innovations being used by contemporary organisations (Mohrman, Ledford & Demming, 1987; Kruse, 1992, 1994).

In this chapter the rationale for conducting this

research will be established. It will be shown that there are compelling practical and academic reasons to study profit sharing.

In the United States and other industrialised countries, a number of developments have led to business enterprises considering profit sharing and other changes to improve their performance. According to some authors (for example, see Kanter, 1983), business organisations are in the midst of a transforming era more fundamental than anything since the "modern" industrial system took shape in the years between 1890 and 1920. O'Dell (1987) has argued that in United States 1980 was a benchmark year in this transformation. This realisation had been preceded by almost two decades of poor performance by America's top corporations which since 1970 had steadily lost markets, and had experienced waning productivity, poor quality, and reduced levels of innovation. Ultimately the result was that the net profits of these large corporations declined 20 per cent when adjusted for inflation (Reich, 1985).

Another set of forces for change in management practice were the dramatic changes in the nature of work, the work force, and the society which have occurred over the past two decades. Kanter (1983) argues that more and more employees are "knowledge workers" who cannot be closely supervised and controlled, but must be left alone to use their knowledge and internal commitment to get the work

done. Instead of simple stand-alone, manufacturing-based and low-technology-based jobs that individuals perform by themselves, many jobs are service-based and require the use of high-technology and integrated work of many individuals (Hater, 1987). Contracting, consulting arrangements, part-time work, and other employment relationships that implicitly tie remuneration to a company's fortunes have multiplied in the past few years (Kinsley, 1991).

Perhaps the most obvious social change affecting management in recent decades has been the extensive anti-discrimination legislation which requires organisations to deal with individuals fairly and equitably. Americans have become increasingly intolerant of the idea that business organisations could behave in an autocratic, authoritarian manner which is actually very inconsistent with traditional American values of political democracy, participation, and egalitarianism (Frost, 1989; Peck, 1994).

With all these changes, traditional autocratic and mechanistic management practices based on hierarchial structures and stability are becoming less appropriate and managers are having to consider the philosophy and tools of participating management based on employee involvement, knowledge sharing, flexibility and innovation (Kanter, 1983; Lawler, 1986; Kruse, 1993).

The study is in two parts. The first part reviews the history, theories and evidence on profit sharing. The

review focuses on (1) the rationales for profit sharing, (2) its effects on the motivations and responses of employees and, (3) its implications for organisational performance. The outcome of the review is a number of hypotheses which are specified and tested in the second part.

There are two distinctive features of this study. The first is that the empirical work reported in this study was carried out in Iran in the 1980's and is therefore concerned with testing the relevance of profit sharing for an industrial enterprise in a developing country. The broad context of the enterprise studied was therefore very different from that outlined above. It was a state owned industrial enterprise which was being directed to introduce profit sharing as an incentive to improve productivity and organisational performance.

It should also be noted that Iran is an ancient land with a culture deeply rooted in antiquity. Thus, the political and religious factors derived from that tradition affect all aspects of life, including motivation, demeanour, and behaviour in the workplace.

The male-to-female ratio is also substantially higher in Iran than in Western industrialised nations, again as a consequence of deeply rooted cultural and religious values. As will be demonstrated in Chapter 6, the educational level of labour force is very low and probably

lower than that of Western factory workers.

In spite of the distinctive features of Iranian society, industrial setting and the employees, it has been assumed here that human psychology and motivation in the workplace have certain common attributes, especially with regard to (a) reaction of employees to financial rewards and incentive structure in which they are provided and (b) relationships among employees and between employees and supervisors. Further, the concept of profit sharing in another form is embedded in the agricultural economy of Iran in which share cropping between the owners of land and suppliers of labour has been practiced since ancient times. It is therefore valid to adopt methodologies developed in the West (with appropriate adaptations) to test the effects of profit sharing in the Iranian context.

In general, improvement of industrial performance in developing countries and the possible role of incentive for employees are important issues. Studies such as this make a contribution to knowledge about the possible role of profit sharing as an incentive in industrial development.

The second distinctive feature of the study is that it was possible to conduct a systematic profit sharing experiment with one group of workers working under a profit sharing scheme and a control group under conventional method of remuneration.

## Basic Definition and Types of Profit Sharing Plans

It is necessary to develop an operational definition of profit sharing because historically the term has been used in a number of contexts. The definition used by the Profit Sharing Research Foundation (PSRF) and the Profit Sharing Research Council of America (PSRC) is: "Any procedure under which an employer pays or makes available to employees, subject to reasonable eligibility rules, in addition to prevailing rate of pay, special current or deferred sums based on the profit of the business" (Metzger, 1975:2)*. Kruse argues that no neat definition of profit sharing covers the variety of plans that can legitimately claim to share profits with employees. One strict definition would be that profit sharing plans must have a formula specifying a fixed percentage of profits to be divided among employees in a predetermined way (Kruse, 1993). According to Peck, the essential element of any profit sharing plan is that a portion of an employee's compensation depend upon the level of profit, which is generally measured according to standard accounting techniques as net income before or after taxes. A formula provides for a portion of profits to be distributed to employees at the end of a specified period. The formula may be applied at the "first dollar" of profits, or there may be a "threshold" of profitability that must be reached before the fund begins to build. The distribution

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can be a uniform amount to all participants or, more commonly, a uniform percentage of wages or salaries (Peck, 1994). Under this system, workers' wages would fluctuate with the company's profits (Epstein, 1995).

It is not necessary to include the implied qualifications in the Profit Sharing Research Foundation definition in our operational definition, however, coverage must be reasonably widespread for a company to be designated a profit sharer. Many companies have management bonus plans or incentive plans for key executives with the company contribution (amount of bonus or incentive pay) tied to the level of profit. Strictly speaking, this is a form of profit sharing which most companies practice, but which covers only a small percentage of total employees. The typical profit sharing plan is egalitarian: the employee mass participation, therefore, exclusions usually apply to an elite group or to those groups with characteristics that separate them form the bulk of the population (Peck, 1994). Profit sharing contracts with widespread coverage generally cover broader classes of employees (either all employees, all salaried employees, or all salaried and hourly employees, subject to certain restrictions). Cases of narrow coverage or plans covering only top executives are not considered profit sharing contracts because they do not cover broad classes of employees.

In practice, profit sharing takes numerous forms.

Profit sharing plans are generally categorised into one of three basic types:
(1) cash,(2) deferred plans, and (3) combination plans (Metzger, 1960:2-3)*.

With cash plans, the employer's contribution is paid to employees at stated times, usually annually, once profit is determined. Cash profit sharing plans are a way to encourage employees to concentrate on the bottom line results, and because bonus checks are tied to company performance, these programmes are real motivators, especially in small and mid-sized companies (Kruse, 1994; Howard, 1995).

With deferred plans, employers' contributions are credited to employees' accounts for later distribution under defined conditions such as retirement or under various circumstances such as disability, death, or severance (Peck, 1994). Some deferred plans have special withdrawal provisions during employment. Combination plans combine both cash and deferred features.

According to the Profit Sharing Council of America, in 1984, deferred plans were by far the most common, accounting for about 80 per cent of all plans; pure cash plans account for about 5 per cent, and combination plans accounted for about 15 per cent of all plans. In 1993, Douglas Kruse estimated that more than one third (37.7 per

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cent) of profit sharing plans have cash plans, and an additional 8.5 per cent have combination cash/deferred plans.

The methods for determining the company contribution vary widely among profit sharing firms. About 30 per cent of companies with deferred plans apply a formula, agreed upon in advance, for determining company contribution (PSCA, 1984:14-15). These formulas generally represent a fixed (or graduated) percentage of company profit, with or without a prior reservation (to assure a sufficient rate of return). Discretionary plans are used by about 40 per cent of the companies with profit sharing contracts. Under these plans, the Board of Directors determine the percentage of profit to be shared each year. In general, smaller companies tend to use discretionary plans, whereas larger companies tend to use fixed formula plans. Some plans, (about 20 per cent of deferred plans) have both fixed and discretionary elements; that is, a fixed (or graduated) percentage of profit is agreed upon in advance, with provision for additional contributions to be determined by the Board of Directors (PSCA, 1984a:14-15).

Many deferred plans have provisions for employee contributions to the profit sharing fund. In many cases the company contribution depends upon the level of participant contributions or level of pay as well as on the level of profit. In most cases where employees must contribute to be

eligible for benefits, the participation rate is very high. Overall about 60 per cent of all deferred profit sharing contracts have provisions for employee contribution; however, in 90 per cent of these cases they are not mandatory to be eligible for the plan benefits (PSRC, 1984b). In some cases, the company contribution is a specific percentage of participant pay; however, there are provisions for the percentage to vary according to levels of business profits. According to Dwyer (1993), pension and profit sharing plans are the best tax shelters left after all the changes in federal income tax laws. The one disadvantage of this type of tax shelters is annual caps on what percentage of their income employees are allowed to contribute. In general, this cap is set at 15 per cent of total compensation.

In summary, profit sharing plans tend to take many forms, they generally are not a simple fixed percentage of business (or accounting) profits. A large percentage of deferred plans have prior reservations or discretionary contributions (about 60 per cent). This indicates that many companies require a sufficient return on assets, or a normal level of business profits before making profit sharing contributions. Many plans provide for the contribution of a specific percentage of business profits "in excess of amount reserved for return on stockholder equity" (PSCA, 1984a:14-15). In 1983, 13 per cent of all profit sharing companies

made no contribution (PSCA, 1984a:6).

## Objectives of Profit Sharing Effectiveness

In The Conference Board, Inc.'s study of 1993, fourteen organisations were asked to give the most important objectives they hoped to accomplish through their profit sharing plans (Peck, 1994). These objectives can be grouped into three categories:

1- Cultural Objectives: they are the most frequently mentioned because the typical profit sharing plan is not a true incentive. That is, it does not evaluate and reward group or individual achievement of a pre-established goal. In profit sharing there is simply too much distance between individual employees and the goal (profitability as measured by the formula). Therefore, the objective is often to help instill certain attitude and/or behaviours believed to be culturally desirable. Cultural objectives often have to do with improving morale, increasing identification with the company, and raising awareness of the importance of the bottom line. These are usually broad statements that do not try to pinpoint particular employee behaviour.

2- Financial Objectives: some of the objectives are to achieve financial results. This involves at least a tacit assumption of a link between employee performance and plan results that is highly questionable. It measures unit and corporate profitability against a preestablished business plan consisting of benchmark measurements. This formula is

reducible to the traditional equation:

Profit or Surplus = Value of Output - Cost of Inputs

and one way to increase the surplus is to decrease input cost.

3- Compensation Objectives: the most important compensation objectives were supplementing compensation without increasing base pay and tying compensation to company performance.

Fourteen organisations rated the degree of success they experienced in achieving their most important profit sharing objectives. The degrees of success that could be reported are : very successful, successful, partially successful, and not successful. Four plans were rated "very successful" in achieving the most important objectives. Seven were "successful", and three "partially successful". There were no reported failures. The distribution of the plans according to degree of success are shown in Table 1.

| Type of Objective | Very Successful | Successful | Partially Successful | Total |
|---|---|---|---|---|
| Cultural | 1 | 3 | 2 | 6 |
| Financial | 2 | 3 | 0 | 5 |
| Compensation | 1 | 1 | 1 | 3 |
| Total | 4 | 7 | 3 | 14 |

Table 1: Profit Sharing Success in Achieving the Most Important Objective.

## A Brief History of Profit Sharing

Edme' Jean LeClaire (1801-1872), a Parisian house painter, is generally recognised as the "Father of Modern Profit Sharing". In 1835, LeClaire was impressed by a comment of one of his friends, M. Fregier, that there was no way to get rid of the antagonism which existed between workman and master except in "the participation of the workman in the profit of the master". The idea ran counter to the prevailing economic thought of the time and, at first, did not appear to LeClaire to be very practical. However, for the next few years, LeClaire "cudgelled his brain" to discover if there might be a workable system for putting the idea into practice (Metzger, 1971:1)

The main objection to employee participation was based on the supposition that the profit sharing programme would not increase the efficiency of the operation sufficiently to justify the profit sharing payments made. But what if this supposition, thought LeClaire, was without foundation? What if the new plan would "create by the common effort, in view of the division of the profit, and with the energy this provokes, an increased return, sufficient not only to pay the workman's dividend, but even to enlarge that of the master?" Would it not be better, reasoned LeClaire, for the business to earn one hundred Francs and give fifty to the workmen than to earn only twenty-five Francs and retain them all? This was evidently a question which could

be satisfactorily answered only by trial; by 1842, LeClaire had sufficient courage of his convictions to attempt the trial. On February 15, 1842, LeClaire announced that he would share with his employees a part of the profits achieved by the work of all. At first his proposal was met with incredulity on the part of some workers but in spite of this LeClaire moved ahead with his programme. On the 12th of February, 1843, LeClaire threw down on the table before his assembled workers a bag containing 12,266 gold Francs (the employees' share of the profits). LeClaire then distributed to each worker his proportionate share based upon the worker's annual wage. Incredulity vanished. The men returned to their work, knowing that if they did a better job each would benefit.

The system worked, and LeClaire soon declared that the results fully met his expectations. LeClaire's profit sharing system, originally an annual cash distribution plan, was later changed into a combination-type programme with part of the profit shares distributed to employees yearly in cash, while part deferred into the contingency fund of Maison LeClaire's Mutual Aid Society for benefits in cases of sickness, accident, death, and retirement.

In 1926, Maison LeClaire was doing a prosperous business under the new name of Laurent, Fournier & Cie. LeClaire's profit sharing programme was still in successful operation after eighty four years. The firm then employed

1,141 persons; it enjoyed a reputation for thoroughness and did much of the high grade painting and decorating in Paris and throughout France (Gorton,1926:249-250). Maison LeClaire (Laurent, Fournier & Cie) operating in Paris, later on changed name to LeFaucheur, Nestier, & Cie, and continued functioning the company's profit sharing programme effectively (Metzger, 1971:2).

The first experiment in profit sharing in the United States has been credited to Albert Gallatin (Secretary of the Treasury under Presidents Jefferson and Madison) who instituted a plan at his New Geneva, Pennsylvania glass works in 1794 (Thompson, 1949:9-10; Kruse, 1993:1). A pastor and crusader for profit sharing, Nicholas Paine Gilman (1899), documented 34 profit sharing plans in 1899. Two decades later, the National Civic Federation (1920) documented 46 plans in the United States with worker pay tied to a percentage of profits (Kruse, 1993:1). Unfortunately, there is no definitive evidence of profit sharing in U.S.A. prior to 1867 when a profit sharing contract was implemented by Bay State Shoe and Leather Company of Worcester, Massachusetts (Thompson, 1949:9). The structure of the American economy was primarily agricultural and small craft oriented throughout the 18th century, and profit sharing may have been more prevalent on an informal level. However, records from the early days are scarce. The earliest known profit sharing plan still in operation today

was implemented by the Proctor and Gamble Company of Cincinnati in 1886 (Thompson, 1949:10)

The earliest formal studies concerning companies' experiences with profit sharing indicates that profit sharing plans were not very prevalent in the U.S. economy until the mid 20th century. Studies by Gilman found just 34 plans in the United States in 1892, and just 23 in 1897 (Thompson, 1949:10-12). Prior to world War I, only a handful of additional plans were recorded, including those implemented by Eastman Kodak Company (1912) and Sears, Roebuck & Company (1916), both still operating today. According to the United States Department of Labour, only 60 plans were in operation as of 1916 (Thompson, 1949:11). During the 1920s, with high industrial profit levels, the number of plans grew steadily. According to studies conducted by the National Industrial Conference Board, there were 97 active profit sharing plans in 1920, and 197 in 1927 (Thompson, 1949:11). The trend towards growth in profit sharing was halted by the Great Depression. Widespread economic losses and business failures led to the abandonment of many of the plans initiated in the 1920s or before. In 1937, only 30 per cent of the plans which were previously studied by the National Industrial Conference were still active (Thompson, 1949:12). The business cycle appeared to have an impact on the number of profit sharing contracts, spurring growth during booms and fostering declines during

recessions or depressions. This is not surprising since, during periods of economic losses, employees do not benefit from profit sharing and therefore grow to distrust them.

A profit sharing plan was originated by Joseph Scanlon in 1935, to raise worker productivity and save a failing steel mill (Peck, 1994). Its many variations became known almost generically as the Scanlon Plan. Another widely used form of profit sharing is the Rucker plan developed by Allan W. Rucker in the late 1930's. A third widely known form of profit sharing was developed and introduced by Mitchell Fein in 1974.

Interest in profit sharing in the United States was revitalised in 1939, in part because of a report on profit sharing sponsored by the United States Senate: Vandenberg-Hering Subcommittee of the Committee on Finance (Metzger, 1960:6). Although there were only 37 deferred plans and a few hundred cash plans in existence at the time, the Senate report documented the high level of performance of many of the companies with profit sharing plans, based upon a survey of 728 companies (including all known profit sharers). The committee concluded that profit sharing "can be eminently successful, when properly established, in creating employer-employee relations that make for peace, equity, efficiency, and contentment" (Subcommittee on Finance, U.S. Senate, 1939). Partly as a result of these findings, legislation was passed providing tax advantages to

companies with deferred profit sharing plans and exempted these companies from Federal wage controls during World War II (PSRC, 1984:9). In 1990 the issue of profit sharing was promoted by Charles Robb, the governor of Virginia and a presidential hopeful who chaired the Democratic Leadership Council. Former Arizona governor Bruce Babbitt, another neo-liberal, said, "It is one of those very infrequent, large concepts that I intend to develop". Democratic Senator, and another presidential candidate Gary Hart sponsored a seminar on profit sharing, and Senator Dale Bumpers introduced a bill to encourage profit sharing by partially excluding bonuses from income taxation (Kaus, 1993).

The structure of American workplaces, and the relation of this structure to economic performance, has received increased attention from researchers and policymakers e.g. Reich (1993) and U.S. Department of Labour (1993). In contrast to the predictions that firms in competitive markets will have a homogeneous set of efficient policies, a number of studies have discovered substantial variation in human resource and compensation policies, with strong links to workplace performance (Kruse, 1993; Blasi et al., 1991; U. S. Department of Labour, 1993). Such findings raise the issue of whether there is a role for public policy in fostering more productive human resource and compensation policies in American workplace.

The growth in number of profit sharing plans has

been dramatic. In a 1945-1946 study by the Bureau of Labour Statistics, two percent of manufacturing establishments, or about 800 firms, were found to operate with some type of profit sharing plans (Thompson, 1949:14). The U.S. Treasury statistics indicate that the number of qualified deferred profit plans grew from 37 in 1940 to 2,113 in 1945 (Metzger, 1960:6). According to PSRF, the number of qualified deferred profit sharing plans about doubled every five years between 1944 and 1977, reaching 186,499 by 1974, and doubled again by 1984 reaching about 360,000 (PSRF, 1984).

The 1987 Profit Sharing Survey conducted by Hewitt Associates in cooperation with the Profit Sharing Council of America gathered information about the effective dates of the profit sharing plans, and the following summary provides a historical perspective:

| Effective Dates | % of Plans |
|---|---|
| Before 1940 | 1.7% |
| 1940-1949 | 5.5% |
| 1950-1969 | 24.9% |
| 1960-1969 | 33.3% |
| 1970-1979 | 23.4% |
| 1980-1986 | 11.2% |
| Total | 100% |

Table 2: Effective Dates of Profit Sharing Plans.

Thus the number of profit sharers has grown in both absolute and relative terms. The reasons most frequently cited for the tremendous growth include the tax advantage initiated during World War II, the rise in overall benefit and retirement packages provided by companies during this century, the success of plans in spurring higher levels of productivity, and the need to avoid potential labour-management conflicts resulting from the increasing power of labour and labour unions.

Unfortunately, data are not directly available on the number of cash profit sharing contracts. There are no favourable tax advantages associated with these plans, and companies are not required to report such information to any federal agency. However, the number of cash plans can be estimated based on information obtained from prior surveys. For example, a survey conducted in 1957 indicted that about 30 per cent of all profit sharing contracts were cash plans (Meier,1957). This implies that about 9000 cash plans were in existence in 1957. By 1983, according to a survey sponsored by the PSRF, about 22 per cent of all profit sharing companies had cash plans indicating that the number of firms with cash profit sharing plans had grown to about 75,000 (PSRC,1984). Thus, it appears that tax advantages alone do not account for the tremendous growth, both absolutely and relatively, in the number of profit sharing companies. In 1994, profit sharing was used by about 20

percent of the companies surveyed by The Conference Board, New York. This research indicates that the adoption of new plans has begun to level off. Profit sharing plans show that their level has remained quite constant since 1990. No significant increase or decrease is likely in the foreseeable future (Peck, 1994).

## Evidence of Superior Performance

A number of researchers have noted major improvements in performance following the adoption of profit sharing. Studies sponsored by the PSRF and the Employee Stock Ownership Association of America contain evidence of superior performance based upon comparisons of financial data for profit and non-profit sharing firms. The PSRF analysed financial data on thirty-eight of the Fortune 500 largest industrial companies and found significantly higher level of performance for profit sharing firms on measures of return on sale and return on equity (Metzger, 1978). Traditionally, profit sharing plans were mostly used by smaller companies. A small company was believed, rightly or wrongly, to have a homogeneous work force, which could be motivated to improve profits. Employees in a small company could focus on bottom line profits, because the bottom line was their "line of sight". In the comparatively recent past, however, profit sharing is used by all sizes and types of organisations. It should be noted that some of the large companies that have adopted profit sharing have installed it

only in certain segments of the organisation or have different profit sharing plans for different segments of the business (Peck, 1994). Profit Sharing Research Foundation compared the financial performance of several large department store chains with profit sharing against that of similar establishments with no profit sharing plans over a 17 year period, from 1952 to 1969, and concluded that "profit sharers outperformed the non-profit sharers by 35 per cent on sales, 47 per cent on net worth, and 80 per cent on company earnings per employee" (Metzger and Colleti, 1971). Profit sharing can help reduce labour cost growth by as much as 5 per cent per year, while increasing employment growth (Bell & Neumark, 1993). The Employee Stock Ownership Association of America compared the performance of companies before and after adopting an employee stock ownership plan (ESOP) and found significant gains in financial performance for post-ESOP firms (The ESOP Association of America, 1979).

Other studies also suggest a potentially positive effect of profit sharing plans upon productivity. Howard compared the performance of 202 profit sharers and non-profit sharers on the basis of sixteen measures of financial performance, including net income margin, return on assets, return on capital, and return on equity (Howard, 1979). In 46.9 percent of the comparisons, the profit sharing firms had significantly higher level of performance. Nightingale performed an extensive survey of 83 firms with profit

sharing contracts (Nightingale, 1980). Executives were asked to evaluate the overall effectiveness of their profit sharing contracts; profit sharing was considered very effective in attracting desirable employees and reducing turnover, providing economic security for participants, increasing productivity, and improving teamwork and cooperation. Conte and Tannenbaum examined the profitability of 98 firms in the U.S. with varying degree of employee stock ownership and found that profitability was positively associated with the degree of employee stock ownership (Conte & Tannenbaum, 1978). Case studies of individual companies indicate that many view profit sharing as having a positive effect upon the overall motivation and morale of the workforce (Metzger, 1978; Kruse, 1993; Peck, 1994). Bhargava (1994) investigated the relationship between profitability and profit sharing in UK firms during the 1980s. The results show that profit sharing programmes bring a positive short run effect on the financial performance of companies. As Weitzman notes: "Profit Sharing might make a big difference for the better" (Weitzman, 1985).

These studies, and the cumulative growth in profit sharing contracts, suggest that many plans have been quite successful and that profit sharing potentially augments productivity.

Profit Sharing, Worker Ownership, Worker Participation

Profit sharing, worker ownership, and worker

participation in management are distinct yet related concepts. Profit Sharing normally follows from worker ownership because workers share in part of the profits of the enterprise. In addition, profit sharing is similar to other forms of worker participation (e.g., worker representation on board of directors, or involvement with other managerial functions) in so far as both strategies influence worker perception of participation with specific goals and objectives of the firm. With profit sharing, workers share in the profits of the firm; with alternative forms, workers participate more directly in management or control. In either case, similar motivational factors may be affected. However, profit sharing, in contrast to worker ownership, does not entail as fundamental a change in the owner-employee relationship. It merely alters the form of compensation inherent in the labour contract and provides a direct incentive to workers (Blasi, 1988; Conte and Svejnar, 1988; Blasi and Kruse, 1991). The best results come when you combine profit sharing with greater worker involvement and give employees information about the company's performance (Labate, 1993).

The theory of the worker owned firm has been formally developed by Vanek (1970) and Meade (1972), among others. With worker ownership and control, the firm's objective function is often viewed as changing from maximising profits to that of maximising the utility of the

worker. Even single product firms can be viewed under worker ownership as producers of two separate goods: the product of the firm itself and a high quality work environment. In this case, negative effects on productivity do not necessarily indicate economic or allocative inefficiency, because there may be a tradeoff between production of the final product and production of a high quality work environment. Many theorists argue that worker-owned firms will strive to maximise profit per worker and therefore restrict output and employment, as compared with profit maximising firms (Stephen, 1982:4-14). With profit sharing, the objective function of the firm can be assumed to be unchanged; many of the problems which arise in comparing productivity under alternative ownership patterns can be avoided.

Part of the overall effect of worker ownership on productivity is often hypothesised to be due to the profit sharing inherent in worker ownership. Jones and Svejnar (1984) concluded that profit sharing has positive productivity effects in both manufacturing and construction. Douglas Kruse's (1993) survey of prior evidences indicates a substantial amount of the employee profit sharing plans are associated with higher company performance, although the causality and mechanisms are unclear. According to Labate (1993), many managers sense intuitively that they can raise productivity by giving employees a greater stake in profits, but there is little detailed data to back the supposition.

**Potential Positive Effects**

Early economists Mill and Marshall noted potential positive effects of profit sharing on productivity brought about by improving discipline or eliminating restrictive labour practices (Jones, 1978:149-162). Most of the formal theoretical development , however, is of recent origin. The leading theoretical arguments suggesting positive effects of profit sharing on productivity are summarised below.

A number of arguments have been developed by economists suggesting that profit sharing should positively affect productivity (Kruse, 1993:77). These arguments focus on the effect of the direct incentive implicit in profit sharing on individual or group behaviour. Svejnar (1983) argues that worker participation and profit sharing can result in superior channels for information processing and conflict resolution, thereby reducing labour turnover (Jones & Svejnar, 1984:3). Cable and Fitzroy (1980) cite the increased commitment and responsibility of workers when the traditional adversarial relationship between labour and management is replaced by a more cooperative atmosphere (Cable & Fitzroy, 1980:100-121). It is increasingly recognised in industry that by introducing carefully crafted group incentive compensation systems, it may be possible to induce workers to work both harder and smarter and to use existing technologies in new and better ways that enhance their productivity. In the short run at least, and perhaps

even longer term, this may be the most effective instrument for raising productivity (Nalbantian, 1997:316). Profit sharing plans have been utilised by firms in an effort to encourage employees to identify with the need of a particular department of a business unit. At the same time, profit sharing plans have often been implemented in an effort to bring diverse business units together (Welbourne & Cable, 1995). Employees in profit sharing plans express positive attitudes toward profit sharing, and generally more positive attitude toward their work and employer than employees in non-profit sharing companies (Florkowski, 1987; Weitzman and Kruse, 1990). This serves to increase effort partly by increasing existing peer group pressure towards better work (Fitzroy and Kraft, 1987). In addition, the "team spirit" brought about by the participatory environment improves productivity by reducing monitoring and supervision costs.

Where supervision is costly, the compensation scheme may be set up in one or more of several ways to induce appropriate levels of worker effort. First, if worker effort is costly to monitor but individual worker output can be easily measured, piece rate may be used (Parsons, 1986; Lazear, 1986; Brown, 1990; Keefe, 1991). Drawbacks of piece rate systems include the possibility of excessive wear or misuse of capital equipment and difficulty in setting an appropriate piece rate, particularly in cases where workers collusion is possible (Levine, 1992a). Second, in the

presence of costly monitoring, employers may choose to defer a significant amount of employee compensation to minimise the risk of employee shirking. Employees will not shirk if the consequences of being caught include the forfeiture of deferred compensation (Lazear, 1979). Along a similar line, Levin focuses on the effects of profit sharing and a participatory environment on group norms and how they affect performance (Levin, 1982). Workers in participatory firms have strong incentives to monitor their fellow workers and make sure they are not shirking. With workers' compensation more dependent upon the collective success of the firm, there are powerful forces of social sanction and disapproval for members who are not putting in maximum effort. This translates directly into less need for supervision, lower rates of labour turnover and absenteeism, increased cooperation and training arrangements among workers, and a tendency for workers to take better care of capital equipment (Levin, 1982:46). Another method of motivating employees in the presence of costly supervising is to pay an above-market "efficiency" wage. The wage can be set such that the employees will put forth optimal effort for fear of being caught shirking and losing the wage premium (Akerlof and Yellen, 1986; Katz, 1987). Collective incentive schemes such as profit sharing plans are another option in the presence of costly supervision. Therefore, one motivation for adoption of a profit sharing plan is to induce higher

levels of worker performance, particularly in situations where performance is enhanced by cooperation among employees (Kruse, 1993:24). Positive effects on worker behaviour are also reported by Wilson and Peel (1991), who find that absenteeism and labour turnover are significantly lower in firms with profit sharing plans.

David Wray, president of the Profit Sharing Council, a Chicago based organisation that encourages and steers companies with profit sharing, says that you have to show the worker how turning the valve tight reduces waste, how cooperating with the next-door worker increases production, how being careful reduces worker's compensation claims, and how all these result in greater profit (Scott, 1995).

Vanek argues that profit sharing or worker participation can result in superior channels of information and better use of workers' organisational skills; this, in turn, can result in a greater willingness to advance innovative proposals or accept technical change (Vanek, 1970). An advantage of profit sharing appears to lie in the encouragement of a culture of joint efforts, identification with organisation and an increased awareness of its financial goals (Peck, 1994). O'Neill (1994) determines that profit sharing plans focus on overall business unit profit, focus on achievement of operational goals, and provide a financial safeguard for funding by ensuring that an overall

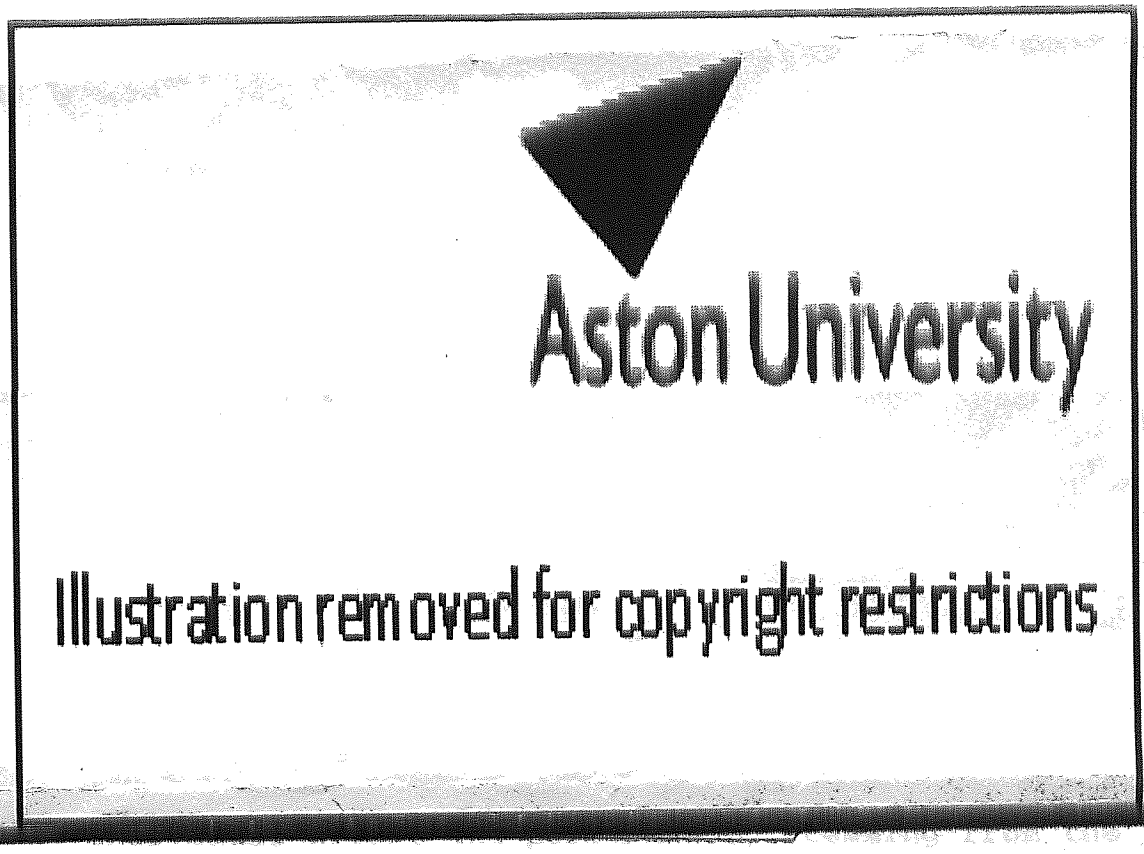
business unit profit level is achieved before any payouts are made.

Meade (1972) questions whether the direct financial incentive to the individual worker would be sufficient to spur increased effort because the individual worker who shares the profit with his fellows will still get some direct benefit from any additional profit due to his own effort, but it will be only 1/nth of the result of his own effort (Meade, 1972:402-408). This is the so-called "1-over-N" problem, or free rider effect (Samuelson, 1977). In an enterprise of 100 workers, each worker will receive only 1/100 of the added reward. With 1,000 workers, the fraction drops to 1/1000, individual incentives are diluted by the fact that the economic rewards must be shared with the other members of the profit sharing plan (Samuelson, 1977; Kruse, 1993:24). For that reason, some managers seeking incentive pay arrangements for their workers prefer individual incentives such as piece rates and commissions (Mitchell, 1995). However, the overall effect upon productivity may still be positive because "the sense of participation may be greater and thus provide a stronger social motivation to do the best for the firm as a whole, i.e., for the whole partnership of fellow workers" (Meade, 1972:403).

Conte (1982) develops a descriptive model of perception, motivation, and communication within a firm

which identifies a causal chain whereby changes in structure can be expected to lead to change in productivity and performance (Conte, 1982). Figure 1 illustrates the basic psychological model and shows the path whereby changes in formal and informal structures of participation and attitudinal variables affect individual and organisational performance through effects on turnover, communication, tardiness, absenteeism, sickness, individual effort, and group norms favouring effort.

FIGURE 1 : CONTE'S PSYCHOLOGICAL MODEL




Psychological Model of Perception, Motivation and Communication Within Work Organisations.

Source: Conte, Michael. "Participation and Performance in U.S. Labour Managed Firms". Participatory and Self-Managed Firms (1982)

Although Conte's model specifically addresses the issue of worker ownership, it is relevant to profit sharing as well. Making compensation contingent upon group performance potentially affects the attitudinal motivator; i,e., commitment, identification, and meaningfulness of work, as well as group norms favouring effort which influence individual and organisational productivity and performance. Quantifying the effect of profit sharing on each of the variables included in the model would be a formidable task requiring a vast amount of data; however, the direction of the effect, in terms of changes in overall productivity, is likely to be the same in each case. The effect upon some of the variables, such as changes in size and complexity of organisation or managerial style may be less dramatic because profit sharing contracts do not fundamentally alter ownership patterns or constrain management.

In summary, the leading arguments suggesting a positive result, focus on the effect of profit sharing on individual effort and performance, stemming from the direct incentive implicit in the profit sharing, or via changes in group norms favouring increased effort and commitment.

**Potential Negative Effects**

Alchian and Demsetz (1972) and Jenson and Meckling (1979) develop and extend a formal theory of team production which predicts potential negative effects from profit

sharing, at least for large firms (Alchian & Demsetz, 1972:777-795; Jenson & Meckling, 1979:469-506). Their argument is that profit sharing may be associated with inefficient management and labour shirking because the rights to the residual are not vested in the central monitor (management) of the firm. The development of their "organisational" or "property rights" theory is briefly reviewed below.

This theory is based on the notion that production activity occurs in "teams" where it is very difficult, or costly, to observe the true productivity of individual team members. A central monitor is therefore required to manage the team and oversee production activities. The difficulty in monitoring the performance of each individual member of the team creates an incentive for shirking and enjoying on-the-job leisure. Efficient monitoring requires that the managers of the firm be the "residual claimant" to the profits of the firm or at least one whose pay or reward is more than any others correlated with fluctuations in the residual value of the firm (Alchian & Demsetz, 1972:786). With profit sharing, the reward to management will be less and therefore management efficiency is reduced. This, in turn, will increase the incentive of the individual worker to shirk which will lower productivity. The larger the team, the greater is the incentive of the individual worker to shirk because only small percentage of the losses occasioned

by the worker will be borne by him (Alchian & Demsetz, 1972:786).

Alchian and Demsetz note that the incentive implicit in a profit sharing contract may encourage some team members to expend greater effort rather than increase shirking. However, they conclude that with the exception of small firms or partnerships, if profit sharing had to be relied upon for all team members, losses from the resulting increase in central monitor shirking would exceed the output gains from the increased incentives of the other team members not to shirk (Alchian & Demsetz, 1972:786). They base their conclusion, in part, on the general prevalence of profit sharing among types of firms within capitalist economies (rather than on theoretical grounds), noting that profit sharing seems largely limited to partnerships with a relatively small number of active partners. The small proportion of larger firms adopting a profit sharing plan is taken as evidence that profit sharing negatively affects productivity; in theory, this occurs because of the sub-optimal monitoring which results when the full bundle of property rights is not vested in the central monitor (Alchian & Demsetz, 1972:785-788). According to Drago and Heywood (1995:507), based on the data drawn from Australian establishments, larger firms are more likely to use individual schemes such as piece rates.

Seongsu (1998), argues that although there is

ample evidence that profit sharing plans increase productivity, little is known about how such plans affect profitability. If productivity gains are not large enough to overcome the labour-cost hike, profit sharing may have limited or even negative effects on profitability. Nevertheless, firms may extend its use for symbolic effects, even though the plan does not boost profits. Profit sharing sometimes fails because the plans are imposed on an organisation that is not receptive to them. Failure often results from either or both of two misconceptions. The first is the imitative adoption of a compensation system. This occurs when a company unreflectively imitates the practice of its competitor irrespective of whether profit sharing would be suitable for them. The second misconception is the fallacy of confusing the tail with the dog. A pay system may reinforce or direct certain behaviours, but it cannot originate them. The introduction of a profit sharing plan will not make employees as a group more conscious of and attentive to corporate bottom line. Profit sharing can, perhaps, enhance this attitude if it is already present (Peck, 1994).

A decision must also be made about the life of the plan. The prevailing view is that variable pay plans should have "sunset provisions", which give a specific date when the plan will be audited and continued unchanged, modified, or discontinued. This prevents companies from becoming

locked into ineffective or outmoded plans. A horrible example of this is a participant in a prior survey who said: "This profit sharing plan has existed for more than 20 years. The original intent is lost, but removing it would be a dissatisfier" (Peck, 1994).

Insiders who face a close-to-zero probability of unemployment always prefer a wage to a share system, since the latter system would result in the firm hiring outsiders and lowering the pay of insiders (Brunello, 1992). Firms are free to hire the optimal amount of labour within its labour-supply constraints, but is not free to alter labour contracts over business cycle (Morton, 1994:331). Of course some adjustments of this type do take place in the real world. Bils (1991) finds that when contracts are revised, individual-firm employment is strongly affected, indicating substantial pent-up stress. It follows that the contract adjustments which occur are not sufficiently large or widespread to fully prevent the employment stresses which they help to moderate. Profit sharing may be risky for an individual firm due to conditions in capital, labour, or product markets; lenders for example, may be reluctant to provide capital for investment in worker training and human resources development since these assets are intangible and hard to monitor (Levine and Tyson, 1990; Levine, 1992b)

The arguments presented above result in opposite predictions concerning the effects of profit sharing on

productivity, however, they are not necessarily inconsistent with the channels presented previously, whereby profit sharing may be effective. These channels (suggesting a positive effect) take into account the incentives for greater cooperation among workers and management, as well as changes in group norms affecting performance, which tend to be ignored by theorists presenting more individualistic models of worker behaviour. Although causal evidence can be cited in support of both sides, it remains an issue to be resolved through empirical investigation.

## Rationale for the Study

Profit sharing is characterised as an under-researched phenomenon in terms of both quantity and quality of research (Kruse, 1994). The economic theory of the profit sharing firm is still in the preliminary stages of development (Weitzman, 1984). Bullock and Lawler (1984) found "strikingly little" information available, and virtually every recent book and journal article begins or ends with a commentary on the need for more academic research and interest in profit sharing. Descriptive commentary and case reports comprise most of the profit sharing literature (Bullock & Lawler, 1984; Driscoll, 1979; Schuster, 1983).

In referring to the state of empirical research in profit sharing, Bullock and Lawler (1984) criticised that many case studies are designed with little or no recognised

scientific value. They could not find a single case in literature of the administration of a survey before and after the implementation of profit sharing plan. Researchers have also generally failed to report any data on validity and reliability, so the measurement quality of profit sharing studies is unknown (Bullock & Lawler, 1984; Kruse, 1994).

Profit sharing warrants research not only because it currently exists as an under-researched phenomenon, but also, and perhaps even more importantly, because of its promise as a means of enhancing organisational effectiveness by improving employee productivity and job related attitudes (Kruse, 1992). It is commonplace for an author to call for further research on his or her topic. In this area the potential payoffs are high, since the underdeveloped research suggests that profit sharing may make a strong contribution in fundamental issues of economic welfare, namely productivity, unemployment, and macroeconomic stability (Kruse, 1994).

A compelling reason for conducting this study is the need for a response to the call for research in topic areas identified as "critical research issues" (Bullock & Lawler, 1984) which are: (1) why profit sharing plans work, and (2) how they are integrated into an organisation. Lawler (1985) concluded that the most meaningful finding of the existing research is that profit sharing plans do work,

while relatively little is known about the reason.

In summarising avenues for research into the question of how and why profit sharing plans work, Lawler (1985) cites numerous possible reasons, including: (1) they operate as effective pay incentive plans, (2) they stimulate problem solving processes, (3) they cause people to work smarter, (4) they cause social pressures that encourage people to be good performers, (5) they cause other organisational changes which contribute to organisational effectiveness, and (6) they create organisational goals that lead to teamwork and cooperation. Research is needed to attempt to determine why and how profit sharing works and to identify the relative importance of the factors leading to the success of profit sharing.

It is the major thesis of this study that introduction of profit sharing into an organisation will alter or actually become the communication structure which links management and non-management. In turn, the knowledge, attitudes, and behaviours of profit sharing participants will be influenced by the quality of input and feedback transmitted by the communication structure.

In Chapters Two and Three a thorough review of profit sharing literature and literature relevant to the specific research hypotheses of this study will be presented. Chapter Five will contain the description of the research design and the method used to collect the data and

test the hypotheses. The results of the data analysis will be reported in Chapter Six. Finally, Chapter Seven will include a discussion of the findings, the implications of the findings for theory, measurement, and management, limitations of the study, and direction for future research.

# Chapter 2

# LITERATURE REVIEW

## Introduction

In an effort to develop the theoretical foundation of profit sharing research in general, and of this study specifically, the review of relevant literature will focus on two topics. Primary attention will be given to the review of profit sharing theory and an examination of past empirical studies of profit sharing. Secondary focus will be on developing the theoretical basis for the organisational communication perspective of this research study.

Profit sharing literature will be reviewed with the purpose of: (1) providing an integrated framework of profit sharing theory for research, and (2) establishing the need for scientific and systematic empirical research. The relevant organisational communication literature will be briefly reviewed with the purpose of: (1) establishing the relevance of profit sharing to organisational communication, and (2) establishing an appropriate measurement model for the study of profit sharing from an organisational communication perspective. An integrated research model and the hypotheses and research questions of the study will be presented in the final part of this section.

## Profit Sharing Theory

**Quality of Work Life Theory.** The most general theoretical framework for this research study is the socio-technical systems theory perspective of the effects of quality of work life (QWL) interventions on employee productivity (Figure 2). QWL interventions are those organisation-wide planned changes aimed at increasing employee involvement in decision making, designing enriched forms of work and innovative reward systems, and improving the work environment (Huse & Cummings, 1985). Profit sharing, as defined in Chapter 1, is clearly a QWL intervention since it is a planned change intended to influence the behaviour, attitudes and outcomes of large groups within the organisation, and it attempts to do so by increasing employee involvement in decision making, implementing an innovative reward system, and improving the work environment. Research on profit sharing has been conceptualised according to the underlying theoretical assumptions of the effects of QWL on employee productivity and organisational effectiveness.

As indicated in Figure 2, quality of work life practices such as profit sharing, can affect productivity in at least three ways (Lawler & Ledford, 1982).

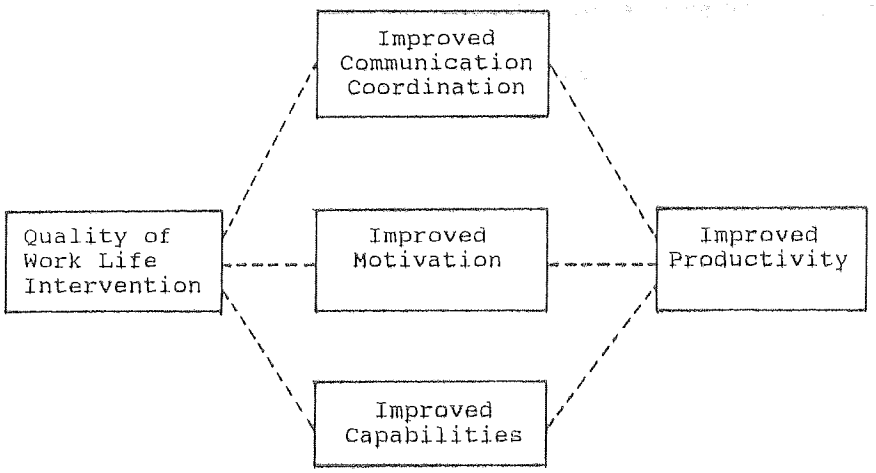



Figure 2 : Effects of Quality of Work Life Interventions

One way QWL interventions may improve productivity is by improving communication and coordination among employees and interdependent organisational departments. Productivity can increase due to the resulting increase in integration of the specialised tasks or groups contributing to an overall task. A second way QWL practices affect productivity is by improvements in employee motivation, especially when important individual higher-order needs are fulfilled. Third, QWL practices may lead to higher productivity if they can improve the job capabilities and the job and organisational knowledge of employees, thus enabling them to perform better.

Quality of work life intervention can also indirectly influence productivity by means of the secondary effects of increased employee well-being and satisfaction (Lawler & Ledford, 1982) as shown in Figure 3. If a QWL

practice provides a better work environment and more fulfilling work, employee satisfaction may increase. Also, the improved productivity resulting from a QWL practice can also increase satisfaction when it leads to greater and more clearly contingent rewards. Ultimately the indirect influence of QWL practices on productivity may accrue from the organisation's increased ability to attract and retain high performing employees.

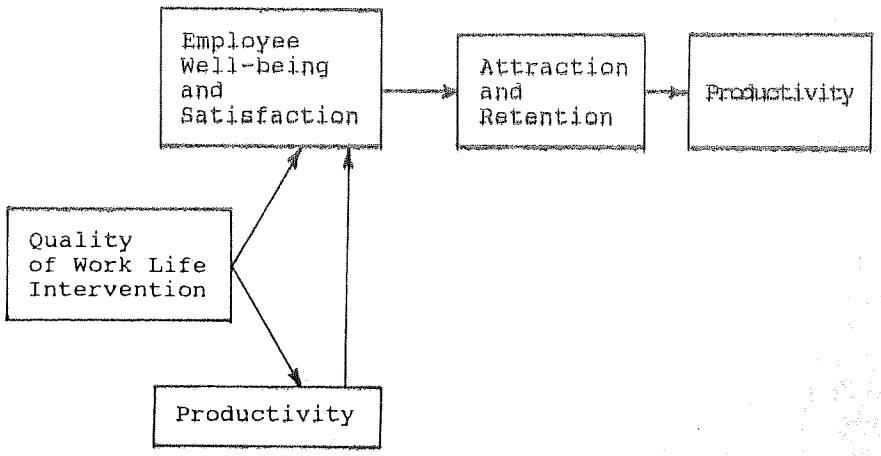



Figure 3: Indirect Effects of Quality-of-WorkLife-Interventions.

Following from the QWL theoretical framework, the profit sharing theory literature seeks to predict the effects of profit sharing on employee productivity and organisational effectiveness. While the profit sharing literature is scant and virtually void of comprehensive, explicitly stated and tested theories (Goodman, 1973; White, 1979; Graham-Moore & Ross, 1983; Lawler, 1985), various

authors have attempted to build a theoretical framework. Some of these attempts have been little more than arm-chair philosophising about the manner in which profit sharing relates to generally accepted good management practices (Helfgott, 1962; Lesieur & Puckett, 1969; Ross & Jones, 1972; Shultz, 1958; Strauss & Sayles, 1957). Other researchers have attempted to form a more rigorous basis for profit sharing from established theory in organisational behaviour and development. It is the work of the second group of authors that is the focus of this section of the literature review. Table 3 provides a summary of the profit sharing theory literature that will be reviewed and integrated.

Table 3

**Profit Sharing Theory Literature Summary**

| AUTHOR(S) | VARIABLES | THEORETICAL BASIS |
|---|---|---|
| McGregor (1958); McGregor (1960) | Cooperation; Resistance to change Human motivation Staff-line conflict | Theory Y; Personality vs. organisation theory[1]; Group dynamics[2]; Hierarchy of human needs[3] |
| Doyle (1970) | Managers' habits and attitudes | Managerial grid; Likert's system 4 |
| Frost, Wakely, & Ruh (1974) | Identity Participation Equity | Theory Y; Organisation assessment[4]; Mutuality of interests[5]; Participative decision making[6]; Equity theory[7]; Expectancy theory[8] |
| Goodman (1973); Goodman (1976) | Self expectancies System expectancies | Expectancy theory |
| Schuster (1980) | Stimulus for change Commitment Motivation | Organisational change[9] Expectancy theory[10] Commitment[11] |
| Graham-Moore & Ross (1983) | Sociocultural Financial Organisational Individual | Contingency Theory[12] |

Table 3 (cont.)

**Profit Sharing Theory Literature Summary**

| AUTHOR(S) | VARIABLES | THEORETICAL BASIS |
|---|---|---|
| Bullock & Lawler (1984) | Structural Factors<br>Implementation factors<br>Situational factors | Expectancy theory[13];<br>Mutuality of interests[14] |
| Lawler (1985) | Reward-Performance Link Beliefs;<br>Organisational communications;<br>Participation | Expectancy theory<br>Congruency theory |

[1] McGregor saw the Scanlon Plan as very consistent with Argyris' (1957) views of the need for organisations to treat employees as psychologically mature individuals.

[2] McGregor specifically referred to the group process research-based predictions made by Coch & French (1948) and Lewin (1952) in his explanation of the Scanlon Plan.

[3] McGregor felt the Scanlon Plan provided an ideal means for satisfying the ego and self-actualisation needs of humans vis a vis Maslow's (1954) theory of human motivation.

[4] Frost et al. do not explicitly refer to any specific author, but their explanation of identity in terms of the organisation is what is commonly known today in the strategic planning literatures as the process and need for organisational assessment of its unique strengths, weaknesses and mission vis a vis Porter (1981).

[5] The authors refer to the need for the organisation and the individual to reach a shared identity which is based upon the principal of mutuality of interests as stated by Taylor (1911).

[6] Frost et al. refer to Likert (1961) for their conceptualisation of participation. The empirical study conducted and reported by these authors was based upon Lowin's model of participative decision making (Lowin, 1968).

[7] While Frost et al. do not make explicit references to it, their conceptualisation of equity can be traced to Adams' Equity Theory (1965).

[8] The construct of equity as described by Frost et al. incorporates the individual's perception of an acceptable instrumentality between performance and pay, as described in Vroom's Expectancy Theory (1964).

[9] The Kochan-Dyer (1976) model of change is the basis of this model. The logic is that cooperation is based upon stimulus for change.

[10] Goodman (1973)

[11] Steer's (1977) model of commitment.

[12] The underlying assumption of the Graham-Moore & Ross theoretical model is the need for identifying the organisational context and adapting a profit sharing program to fit or match the particular context. In general, this can be related to the Contingency theory of management (Wren, 1979).

[13] Bullock & Lawler explicitly describe the underlying construct of their model as being the pay-performance link or expectancy in term of Vroom's Expectancy Theory (1964) and the Porter & Lawler (1968) extension.

[14] The Bullock & Lawler model begins with the acknowledgement of the "simultaneous maximisation" strategy implicit in profit sharing which can be identified as Taylor's (1911) principle of mutuality of interests.

**Scientific management perspective.** As pioneers in the development of management thought, several very early writers sought to advance the principal of mutuality of interests through the use of economic incentive programmes such as profit sharing. These authors' ideas on profit sharing come from the scientific management perspective with the underlying assumption that man is primarily an economically motivated being. While this would deviate drastically from the assumptions of Theory Y (McGregor, 1960), the earliest models of profit sharing were actually very similar to those developed a century or more later.

As early as 1832, Charles Babbage proposed a reward scheme consisting of two facets: (1) a portion of employees' wages would depend on factory profits, and (2) the worker should derive more advantage from applying any improvement he might discover, for example, a bonus for suggestions (Wren, 1979). Further, Babbage recommended that workers receive a fixed salary based on the nature of their task plus a share in profits. The suggestion system would require a committee to determine the proper bonus for production savings. Theoretically, if profit sharing were successful in creating an environment of mutuality of interests among economic persons, the following conditions should ensue: (1) each worker would have a direct interest in the firm's prosperity, (2) each worker would be stimulated to prevent waste and mismanagement, (3) every

department would be improved, and (4) only workers of high skill would be admitted since "it would be the common interest of all to admit only the most respectable and skilful" (Wren, 1979:81). Babbage also predicted that the use of profit sharing would remove the necessity for "combinations" of workers, or unionisation, since with mutuality of interests between worker and manager, neither would oppress the other, and all would prosper (Wren, 1979).

Half a century later the idea of profit sharing was again broached by another pioneer in scientific management, Henry R. Towne. In 1889, Towne published a formal paper entitled "Gain Sharing" in a journal called Transactions, published by the American Society of Mechanical Engineers (Wren, 1979). In this paper Towne contended that profit sharing was not an appropriate solution to the problems of greater worker productivity. Instead, Towne proposed to determine costs and productivity for each work unit and to return to members of the unit the "gains" associated with improvements in their own performances. These conceptualisations of profit sharing provide an indication that interest in, and knowledge of profit sharing existed as early as 1832 and 1889. However, not until more than four decades after Towne's writings did profit sharing reappear in management practice in the form of the Scanlon Plan. Almost another twenty years passed before profit sharing became a serious topic of theoretical

interest in the management literature.

**Theory Y and the theory of personality and conflict perspective.** Douglas McGregor (1958,1960) stated that the Scanlon Plan was a philosophy of organisation. He viewed it as much more than a management programme but rather as a way of life that would be effective because it was consistent with social science theory and findings. McGregor found theoretical support for the Scanlon Plan in his Theory Y assumptions and Argyris' theory about the nature of conflict between a psychologically mature adult and the traditional form of organisational structures and processes (Argyris, 1957).

According to McGregor (1958:91), "...the Scanlon Plan creates the necessary conditions for the discovery that workers have brains and ingenuity as well as muscles..."

Because the participative mechanisms of profit sharing plans involve people in the process of change rather than imposing it on them, they should be less likely to resist changes in the work-place. Support for this prediction was cited by McGregor from the findings of group-process research (Coch & French, 1948; Lewin, 1952). Further, McGregor observed that Scanlon Plan production and screening committees, as well as the whole management-employee relationship which develops, provide ideal means for satisfying ego and self-actualisation needs (Maslow, 1954), which are typically frustrated under the conditions

of traditional organisational employment. Finally McGregor proposed that the use of profit sharing would reduce the traditional tensions between line and staff employees because the need for external control would almost vanish as collaboration toward the common objective of improving the bonus-based ratio became a way of life. This would be a convincing demonstration of the well-established psychological fact that self-control is far more effective than externally imposed authority (Argyris, 1957; McGregor, 1960). McGregor formulated this theory of profit sharing while a faculty member at Massachusetts Institute of Technology where Joseph Scanlon, founder of the Scanlon Plans, also a faculty member (Lesieur, 1958).

**Identity, participation, and equity perspective.** While McGregor did not actually propose a specific and unique theory of profit sharing, his work explaining the theoretical foundations of Scanlon Plan formed the basis of a somewhat more explicit theory proposed by Frost, Wakely, and Ruh (1974). Their research was begun in 1950 at Michigan State University and resulted in Scanlon Plan theory comprised of three principles which represent the basic concepts of individual and organisational behaviour that are the most relevant to understanding how and why the Scanlon Plan works.

Identity, participation, and equity are the basic management concepts upon which Frost and his colleagues

developed their profit sharing principles. Within this context, identity exists when all employees are able to individually internalise the need for change and improvement faced by the organisation in response to competitive forces outside the organisation. Participation is the involvement and voice of the subordinates in organisational decision making. Equity is the perceived balance between a stakeholder's input to the organisation and the outcomes received from the organisation.

Beyond the definition of the general concept of identity, Frost and his colleagues define the principle of identity for all employees as specification of the right job and the criteria for doing the job correctly. This evolves from a clear understanding of the organisation's external and internal realities and objectives and individuals' personal needs, strengths, weaknesses, and goals. Identity also specifies that past performance, practices and relationships are inappropriate and inadequate, that present competitive realities are compelling reasons to change, and that the future depends on earning a unique competitive position (Frost, 1989). Identity will occur to the extent that employees are educated and are able to understand the economic realities of the organisation (Frost, 1989). If the principle of identity is effectively applied, then all employees know: (1) what the company was yesterday, what it is today, and what it must become tomorrow, and (2) what the

organisational identities, roles, and responsibilities of all its employees are (Frost et al., 1974). The entire definition of identity as a Scanlon Plan principle is referenced to McGregor's Theory Y assumption. It is assumed that employees will seek significant roles, identities, and responsibilities within an organisation because that is a basic feature of human nature.

Conceptually, the identity principle also incorporates the issue of mutuality of interests (Taylor, 1911). According to Frost et al. (1974), employees are considered critical resources that are sought after, educated, stimulated to learn, and then held accountable. The organisation offers the employee a means of feeling important, conspicuous, and worthy. Between the employee and the organisation, "...their commonality and common interests should be clearly identified and continuously experienced and reinforced..." (Frost et al., 1974:66). It was proposed that the Scanlon Plan did exactly that.

As a Scanlon Plan principle, participation is expressed as the opportunity, given only by management, and responsibility, taken only by employees, to influence, but not to make, the decision in their areas of competency (Frost, 1989). Participation makes it possible for all employees to perceive more clearly the competitive reality demands as personal challenges which they can reach and confront in their own part of the work. Participation also

permits all employees to help define procedures which give them influence over their own jobs and occupational destiny. The opportunity to participate enables employees to become interested, involved, and committed, and at the same time to become responsible for themselves occupationally and for the organisation competitively. The process required to fulfill the principle of participation is responsible ownership, by employees, of the need to change.

The underlying assumptions of this component of the Frost et al. (1974) model again include the Theory Y assumption that is the basic human nature to want to work and to seek advancement and responsibility. Theoretical basis for the participation principle is also provided by Argyris' theory of fit between personality and formal organisation. This theory states that the traditional hierarchical and non-participative nature of formal organisational structures and practices conflict with mature, adult, healthy personalities. If this is true then the effect of the participation principle, which encourages responsibility for change on the part of employees, and the ensuing Scanlon Plan committee structures, will be to alleviate common frustrations between formal organisations and mature individuals. Participative decision making literature in general, and the Lowin (1968) model and the Likert (1961) model specifically, are also cited by Frost et al. (1974) as theoretical support for the participation

principle. Participation was also cited by Doyle (1970) as a primary predictor of the degree to which profit sharing will be successful. In his loosely formulated profit sharing model, Doyle (1970, 1983) predicts that the closer a firm's management practices move towards participative models such as a Likert System 4 (Likert, 1961), the more likely profit sharing will be successful.

Another consideration is the distribution. Experts in profit sharing bonus plans recommend that division be equitable (Scott, 1995). A survey of 160 participants from three companies that implemented profit sharing programmes confirms the assumption of Florkowski (1992) that perceptions of pay-equity and fairness in the performance-reward system were key factors in generating participants for the plan. Workers might be more enthusiastic about sharing bad times if executives were also sharing. But it rarely works that way. The difference between the average worker's salary and that of the CEO continues to climb. It was a multiple of 41 in 1960, it is 93 today (Kinsley, 1991). There is a plausible argument that profit sharing, when accompanied by more democratic management practices, can help restrain the increasing inequity of income (Kaus, 1993).

Returning to the Frost et al. model, the principle of equity is defined as the assured fair returns on the investments made by the customers, the capital investors,

and the employees. The process required to fulfill the principle of equity is the personal, professional, and organisational accountability for these equitable returns to the three principal investor groups (Frost, 1989). As such, equity is considered the capstone of the three Scanlon Plan principles required to establish and maintain a profit sharing plan. With respect to employees, equity is the legitimate expectancy of each employee for a fair return on his investment of personal resources into the organisation. If equity depends primarily upon the perceptions and comparisons by organisation members of individual input/outcome ratios (Adams, 1965), then there is a need for an instrument that can be used to put the objective of equity in perspective for all organisation members. This need, and the need for accountability required by the principle of equity are fulfilled by the bonus formula component of profit sharing plans.

The Frost et al. (1974) profit sharing plan theory provides a useful conceptual framework for understanding how and why profit sharing processes and frameworks work, as well as the benefits resulting from the use of profit sharing plans. However, the principles of identity, participation, and equity were not viewed as easily operationalised or as readily generating testable hypotheses (White, 1979). Some difficulties with the operationalisation of the Frost et al. (1974) Scanlon Plan principles may be

due to the lack of clear and thorough development of the principles beyond their meanings as general management concepts. In other words, the principles are too broadly defined to be very meaningful in a specific context such as the profit sharing plan. Accordingly, it is difficult to determine exactly what the principles are meant to encompass. One may wonder if perhaps identity, participation, and equity should be thought of as "critical psychological states" (Hackman & Oldham, 1975). If so, some effort should be given to explain the linkages between these critical psychological states and profit sharing plan structures and processes and also between the critical psychological states and outcomes resulting from use of profit sharing plans. A further issue is that the Frost et al. (1974) theory also fails to delineate the relationships, if any, between the three principles. Another inconsistency and source of difficulty in operationalising this theory is the fact that identity and equity are essentially perceptions, while participation is a behaviour. While there are weaknesses in this attempt to develop a theory of profit sharing, its contribution is clearly not lost. Throughout the remainder of this portion of the literature review, the value of the Frost et al. (1974) theory as a broad basis for the development of contemporary profit sharing theory and research will become evident.

**Expectancy theory perspective.** A central feature

of the Frost et al. (1974) Scanlon Plan theory is its comprehensive nature, intended to explain the overall profit sharing management philosophy and the general impact of profit sharing on organisational effectiveness. Another approach to profit sharing theory is to focus on specific aspects of the profit sharing process and resulting behaviours. An example of this approach is the expectancy theory perspective on profit sharing theory.

It relates to the Frost et al. theory with respect to the reference to equity as an expectancy held by individual employees. First proposed by Goodman (1973, 1976), the expectancy theory approach attempts to explain the effects of profit sharing on employee behaviour in terms of the relationship between job performance and rewards. In this model, Goodman (1976) refers to system-expectancies and self-expectancies. For profit sharing to work, employees must believe that making suggestions or participation in the system will lead to bonus (system-expectancy) and that they can make suggestions (self-expectancy). Goodman's model is a direct application of the Porter & Lawler (1968) hybrid expectancy theory. It proposes that an individual's effort toward job performance is influenced by the rewards associated with that performance and the extent to which these intrinsic and extrinsic rewards lead to satisfaction, as a result of the perceived value they have for the individual.

System expectancy, the perceived link between performance and pay, is the single construct forming the basis from which Bullock & Lawler (1982) developed a simple heuristic model of profit sharing plans. The model proposes that multiple factors (which they derived from the descriptive and empirical literature) will influence the extent to which employees perceive strong links between behaviours required from profit sharing, such as suggestion-making, cooperative team effort, or productivity improvements, and rewards from profit sharing, such as a group bonus. In the Bullock & Lawler (1984) model, the influencing factors are identified as:

(1) Structural factors: involvement structure, financial formula, payout percentage;

(2) Implementation factors: employee involvement, objectives, use of interventionist, and

(3) Situational factors: size, union status, management style, technology, environment.

**Situational/contingency perspective.** A common theme of the authors reviewed to this point in the research is the acknowledgement that profit sharing exists, and appears to be effective in diverse forms and in varying situations. There does not appear to be any "one best way" to implement profit sharing plans (Kruse, 1993; Peck, 1994). Instead, the effectiveness of profit sharing may depend upon the situation in which it is being applied and the extent to

which the profit sharing plan is designed to fit the specific situation. This leads to a situational or contingency perspective of profit sharing theory which is highlighted in the Graham-Moore and Ross (1983) profit sharing model. The objective of this model is to systematically identify profit sharing "profiles" of individual firms. A "profile" is a global assessment of a firm's overall nature and objective and is consistent with the Frost et al. (1974) principle of identity in which all members of the organisation come to a clear realisation of the nature and objectives of the firm. The essence of the Graham-Moore and Ross (1983) framework is to enable a firm to identify its profit sharing "profile", or situation, and then to adopt a level of profit sharing (varying form high involvement and highly structured participation mechanisms to unstructured and low involvement participation mechanisms) which is most consistent with its "profile".

Similar to Bullock & Lawler (1984), the situational variables or "profile" characteristics identified by Graham-Moore and Ross (1983) are derived from the descriptive and empirical profit sharing literature. These are the relevant and key variables that explain the initial acceptance of profit sharing and whether institutionalisation of profit sharing occurs over time (Graham-Moore & Ross, 1983). Included in these variables are:

(1) Organisational variables: climate, size, technology, policy, reward structure, identity;
(2) Socio-Cultural-Institutional variables: union and industrial relations, workforce characteristics, external environment;
(3) Individual level variables: managerial philosophy, trust, locus of control, skill level, motivation, satisfaction; and
(4) Financial variables: internal system attributes (accuracy, utilisation, control of inventory, production, budgets, standards), and external system attributes (general and task external environment).

Assessments of the firm's current state relative to each of these variables are combined to arrive at the global construct of a profit sharing "profile".

Many common variables are found in the Graham-Moore and Ross (1983) and Bullock and Lawler (1984) models. Also, some of the situational variables identified in both of these models are reflective of the work of Frost et al. (1974); Goodman (1973, 1976); and McGregor (1958, 1960). The most recent proposals of profit sharing theory by Lawler (1985); and Mohrman, Ledford, and Demming (1987) also reflect a contingency approach.

**Congruency perspective.** Lawler (1985) contends that high levels of expectancy or instrumentality between performance and pay (Porter & Lawler, 1968) will be

dependent upon the congruency or fit (Nightingale, 1982; Lawler, 1986) between the organisational context or profile (Graham-Moore & Ross, 1983) and the participation mechanism and bonus formula of the particular profit sharing plan. In proposing a combined congruency-expectancy argument, Lawler predicts that profit sharing will be effective to the extend that the bonus formula, the participation structures, and the existing management philosophy are consistent and combine to create a situation in which employees' rewards are clearly linked and influenced by group performance.

The congruency argument is further developed by Mohrman et al. (1987). They explain the effects of the degree of congruency from two different theoretical perspectives. According to an interaction approach, high organisational performance results from the right combination of contextual or situational conditions and organisational design characteristics. In the case of profit sharing, Mohrman et al. (1987) claim that profit sharing causes improvements in organisational performance as a result of the interaction between characteristics of the profit sharing plan (e.g., complexity of the bonus formula, degree of structure of the participation mechanism, etc.) and contextual conditions (e.g., technology, market type, union status, size), and/or implementation factors (e.g., degree of employee involvement, support at higher organisational levels). Many interaction effects of profit

sharing are cited in the literature, such as Lawler's (1981, 1985) references to a number of organisational conditions that are conductive to profit sharing, and White's (1979) findings that employee participation and managerial attitudes were related to success in a study of 23 profit sharing plans.

The effects of the degree of congruency between a profit sharing plan and the organisational context can also be explained from a system approach (Mohrman et al., 1987). According to this approach, high organisational performance levels result from high levels of internal consistency between the elements of the organisational system. In the case of profit sharing, Mohrman et al. (1987) propose that profit sharing will result in improved organisational performance to the degree that profit sharing is consistent with other internal organisational characteristics. This approach is found often in the profit sharing literature. According to Mohrman et al. (1987), proponents of profit sharing emphasise that the success of profit sharing plans depends heavily upon employee participation and that a strong value for employee participation among managers is necessary (Doyle, 1983; Frost et al., 1974; Lawler, 1981; 1986). From this perspective it is often argued that profit sharing is a reward that is internally congruent with participative and high involvement organisations. A major proposal of the Mohrman et al. (1987) model is that due to

either interaction effects or internal consistencies, profit sharing will result in varying degrees of positive cognitive attitudinal changes in employees.

Also consistent with the congruency approach to profit sharing theory is the work of Schuster (1984b). Schuster's model is a more general model of labour-management cooperation programme effectiveness and is meant to be applied to various programmes, some of which are distinctly different from profit sharing. This model focusses more upon general change and cooperation processes than other profit sharing models. Its significance here is that it relates to the profit sharing theories that have been reviewed because it incorporates the Goodman (1976) expectancy model and also maintains that congruency will be a significant determining factor of the level of change and cooperation that occurs in a labour-management situation.

**Summary.** Researchers' attempts to develop profit sharing theory have amounted to little more than obvious applications of classic management theories of organisational behaviour and employee motivation. McGregor (1958, 1960) demonstrated the consistency of profit sharing with Theory Y assumptions and motivation theories. Frost et al. (1974) applied the broad concepts of identification, or mutuality of interests, participation, and equity to profit sharing with a notable lack of specificity. Lawler (1985) tried to predict the effects of profit sharing at both the

organisational and individual levels with the application of congruency and expectancy theories. Overall, it appears that existing profit sharing theory is too broad to provide a meaningful basis from which to study and understand how and why profit sharing works. Peck concludes that profit sharing will no doubt continue to be used by a minority of companies, whether for right or wrong reasons (Peck, 1994). If profit sharing research is to proceed in a fruitful manner, existing theories need to be integrated and more focused perspective developed from which to examine the profit sharing process.

# Chapter 3

# EMPIRICAL LITERATURE

## Introduction

Overall, the empirical research conducted on profit sharing is scant and of limited scientific value. Most of the published reports are so unscientific they cannot even be characterised as research studies (Lawler, 1985). Bullock and Lawler (1984) were able to find only 33 cases of profit sharing reported in even moderate detail. Kruse (1993) studied eleven prior comparisons of profit sharing and non-profit sharing companies, but was unsuccessful in producing consistent findings on the relationship of profit sharing to factors such as unionisation, firm size, employee compensation, firm growth, capital intensity, and industry variability. Quantitative research on profit sharing could be found, but no empirical case studies measuring organisational change with standard scientific methodology could be cited (Bullock & Lawler, 1984). While the concept of share economy creates a theoretical strong case to encourage profit sharing, the empirical evidence on employment behaviour does not yet make a strong case for such incentives. The tests are hampered by complexity of the empirical issues surrounding the study of employment behaviour under profit sharing. As noted by

Mitchell, even tests of straight forward economic predictions such as the employment effects of a minimum wage are inconclusive, raising the question if we can not settle that issues empirically, what hope there is for convincingly and definitively demonstrating the macro effects of a particular pay system (Mitchell, 1993:22).

Not only is the value of empirical literature suspect in terms of its quantity and scientific basis, but there is also the potential for significant under-reporting of negative results (Lawler, 1985). Organisations that successfully implement profit sharing plans are more likely to write about their experiences than are those who fail (Lawler, 1981). Graham-Moore and Ross (1983) even state that no one really knows the failure rate of profit sharing plans, since most plans have been installed by consultants who are frequently unwilling to share their clients' experiences with the public (Graham-Moore & Ross, 1983). Peck (1994) argues that no causal connection can be made between participant performance and the plan outcome, however, there seems to be a frequent failure to grasp this on the part of profit sharing users.

Only few comprehensive reviews of the empirical profit sharing literature have been published. Moore and Goodman (1973) reviewed the findings of 44 case studies in which the Scanlon Plan was reported to have made significant contribution to organisational effectiveness.

This literature review was later expanded to include studies of profit sharing other than Scanlon Plans (Graham-Moore & Ross, 1983).

White (1979) published the other major review of empirical profit sharing literature, by citing 40 profit sharing plans reports. White summarised each citation according to the nature of the publication's content, the bias of the author, and the correlations or causes of success identified in the report.

Another often cited, although less comprehensive, review of the empirical literature has been done by Schuster (1983). This review includes several empirical studies not included in either of the other two more comprehensive reviews.

Kruse's review is based on a small sample of the prescriptive literature on group incentives drawn from numerous journals, magazines, and newspaper articles describing successful and unsuccessful case studies, along with more general literature mentioning profit sharing, up through June 1993 (Kruse, 1993). Kruse noted the high stakes in exploring the potential of profit sharing, since the issues addressed by the profit sharing theories, i.e., productivity, unemployment, and macroeconomic stability, are central to economic performance, security, and standard of living.

**Graham-Moore & Ross review.** Based upon their

review of the empirical literature, Graham-Moore & Ross (1983) suggest that the following outcomes often occur when productivity profit sharing is successful:

1. The plan enhances coordination, teamwork, and knowledge sharing at lower levels (Lesieur, 1958; McKersie, 1963; Moore & Goodman, 1973; Scanlon, 1947; Scanlon, 1949; Slichter, Healy, & Livernash, 1960).

2. Social needs are recognised by participation and mutually reinforcing group behaviour (Frost et al., 1974; Ruh, Johnson, & Scotrino, 1973; Whyte, 1955).

3. Attention is focused on cost savings, not just quantity (McKersie, 1963; Moore & Goodman, 1973).

4. Acceptance of change due to technology, market, and new methods is greater since higher efficiency leads to a bonus (Lesieur, 1958; McKersie, 1963).

5. Attitudinal change of workers occurs and they demand more efficient management and better planning (Lesieur, 1958).

6. Workers try to reduce overtime, to work smarter, not harder or faster (Anderson, 1978; Scanlon, 1947; Scanlon, 1949).

7. Workers produce ideas as well as effort (Lesieur, 1958; Shultz, 1958; Whyte, 1955).

8. More flexible administration of union-management relationships occurs, including the establishment of performance evaluation criteria (Helfgott, 1962).

In addition, Graham-Moore & Ross (1983) note in their review the following organisational and environmental conditions which are indicated by empirical research to be associated with profit sharing plan research:

1. Front-line supervisors may feel threatened by the suggestion system because they feel they are no longer bosses or because a high rate of suggestions make their past behaviour look autocratic (Frost et al., 1974; Lesieur, 1958; Shultz, 1951; Whyte, 1955).

2. The performance norm is difficult to adjust in the face of changing conditions (Jehring, 1967; McKersie, 1963; Ross, 1975).

3. A fair measurement of an organisation's performance may be impossible (Howell, 1967; Strauss & Sayles, 1957).

4. Managerial attitudes must be either favour participative management or be disposed to change (Frost et al., 1974; Ruh, Wakely, & Morrison, 1972).

5. Previous wage structures, such as individual incentive-suggestion system, must be phased out. Compromises here are common and lead to transitional rates (Gilson & Lefcowitz, 1957; McKersie, 1963).

6. The plan can focus too intently on labour savings while not providing sufficient attention to other sources of savings (McKersie, 1963).

7. The characteristics of the firm, such as size, management philosophy, climate, technology, and

sophistication of accounting systems require matching productivity profit sharing mechanisms in order to achieve the maximum benefits of profit sharing (Goodman, 1973; O'Dell, 1981; White, 1979).

**White review.** The purpose of White's (1979) review was to identify: (1) the relationship between participation and profit sharing plan success, (2) factors that contribute to participation and profit sharing plan success, and (3) factors needed to supplement participation in order to achieve success. Three groups of variables that related to profit sharing plan success were identified: (1) situational factors, (2) personnel characteristics, and (3) process variables.

Size, technology, and managerial climate were the three situational variables commonly cited in the literature as being important determinants of profit sharing plan success. Empirical evidence suggests that as the size of a profit sharing unit increases, the success of the plan is less likely (Helfgott, 1962). This is not a conclusive finding because empirical evidence to the contrary also exists (Lesieur & Puckett, 1968). With respect to technology, it appears that more extensive technology reduces the potential for employee participation and therefore also reduces the effectiveness of a profit sharing plan (Helfgott, 1962). In reference to managerial climate, the extent to which managers are rewarded for facilitating

employee participation is directly associated with profit sharing plan success (Wallace, 1971).

The following personnel characteristics have been examined as critical factors in the plan's success: (1) the attitude of the CEO (Gilson & Lefcowitz, 1957; Helfgott, 1962), the attitude of management (Moore & Goodman, 1973; Schultz, 1958; Wallace, 1971), and particularly the attitude of foremen (Strauss & Sayles, 1957; Whyte, 1955) toward the plan and participation in general, (2) characteristics of the workforce such as experience, skill, tenure, sex, importance of work (Gilson & Leftcowitz, 1957; Helfgott, 1962), and (3) expectations of success/failure before the plan is begun (Schultz, 1958).

Process variables are identified by White as variables that concern the manner in which a particular plan actually functions. Variables found to be positively associated with profit sharing plan success are: (1) the number of years the Plan has been in place, (2) the timeliness and usefulness of performance feedback (Burtnett, 1973; Chamberlain, 1946), and (3) the extent to which the bonus or financial aspects of the plan are emphasised over the non-financial aspects (Helfgott, 1962; Moore & Goodman, 1973).

**Schuster review.** Schuster's (1984a) review of the empirical research on profit sharing plans includes several studies not included in the White or Graham-Moore & Ross

reviews. In one study the results indicated that employees believe the plan helps the employer financially, improves trust and confidence in the company, increases employee knowledge, and helps employees do their jobs better and work harder (Goodman, Wakely, & Ruh, 1972). Varying levels of employee participation in profit sharing plan organisations have been associated with varying levels of job involvement, motivation, and identification with the organisation (Ruh, Johnson, & Scotrino, 1973). In the study by Ruh et al. (1973) it was found that managers supported employee participation more often and expressed more confidence in employee abilities in firms that had retained the profit sharing plan than in firms where it had been discontinued.

Two studies examined the employee participation process occurring within the profit sharing plan. White and Ruh (1973) found no support for their hypothesis that personal values (e.g. sense of accomplishment, independence) moderated the relationship between employee participation and favourable job attitudes. Goodman and Moore (1976) employed expectancy models to study the process by which employees develop beliefs concerning the plan. System expectancies (beliefs concerning the contingency of receiving a monthly bonus on making suggestions) were influenced by job flexibility, organisational trust, group attitude about the plan, and supervisory acceptance of the plan. Self expectancies (beliefs concerning the likelihood

that an individual will be able to make a profit sharing suggestion) were influenced by group attitudes and supervisory acceptance of the plan.

Schuster cites three studies that have provided some empirical evidence of profit sharing plan effectiveness. One was a cross-sectional study of 23 companies (White, 1979) that used two measures of profit sharing plan success, plan retention and assessment of success by three independent raters. These measures did not evaluate actual performance, but assessed the company according to a definition of plan success as "...the extent to which the full effort, experience, creativity, and innovative ability of the entire work-force through the use of the profit sharing plan is directed toward increasing the organisation's total effectiveness..." (White, 1979:295). Results of the study indicated that rated success was higher in firms in which the plan was retained, employees felt favourably about the level of participative decision making existing in their firm, and managers had positive attitudes towards participative management practices and policies. Firm size was found to correlate positively with plan retention and rated plan success. This finding was not consistent with previous findings cited by White (1979) in his own literature review, therefore he concluded that firm size was not a relevant predictor of profit sharing plan success.

The second study of seven profit sharing plans (Driscoll, 1982), assessed the effects of the plan from the perspectives of four groups: (1) employers, (2) unions, (3) workers, and (4) society and suggested that employees of profit sharing plan firms made more suggestions, attended more union meetings, reported fewer health problems than employees of non-profit-sharing-plan firms. These behaviours are interpreted as favourable effects of the plan from the perspectives of the employers, unions, and workers.

Schuster's (1983b) own study was the third one in this group. He conducted a longitudinal study of four profit sharing plans and found that productivity generally increased in the initial two years following installation of the plans. In one case productivity increased almost 40 percent. In most cases employment patterns remained stable and tended to reflect industry trends.

**Kruse review.** Kruse collected data on profit sharing coverage, types, and formulas, as well as on other personnel policies that may compete or interact with profit sharing in affecting firm behaviour. A telephone survey was done of 500 public companies, half with profit sharing and half without, for purpose of comparison. The survey data were matched with publicly available data from public companies on company characteristics and performance over the 1970-91 period. Kruse suggests that a major source of support has been ideological: profit sharing has been seen

as a way to strengthen support for capitalism by tying worker rewards more explicitly to the health of the firms. He notes two main theories about the effects of profit sharing. One is tied to employee incentives: profit sharing has long been advocated on the grounds that it can improve business performance by encouraging worker effort, cooperation, and sharing of ideas and information (the "productivity theory"). A second, more recent, theory is tied to employer incentives: profit sharing has been theorised to change incentives to hire and retain employees, leading to greater employment and output stability for firms and the economy as a whole (the "stability theory"). Kruse questions if there is enough practice of profit sharing to make it even worthy of study. He concludes that the prevalence does not appear to vary greatly by occupational status or by firm size, but does appear to be more common among companies with public stock, and less common among unionised employees.

In contrast to most previous research, the analysis presented by Kruse focused on what factors predict the adoption of profit sharing, relying mainly on changes in variable in two years preceding the decision to adopt. Such analysis provides a better indication of the causality between company characteristics and the presence of profit sharing. The theory that increased variability of company sales or profits helps predict profit sharing adoption

receives some very weak support.

The firms' expenditure on research and development was also hypothesised to be a potential predictor of profit sharing, since this is an area in which supervision costs and the value of cooperation may be higher. However, neither levels nor changes in research and development expenditure were significant predictors of profit sharing adoption. Likewise, recent growth in sales and capital intensity did not predict adoption. The majority of these studies, though, have not compared companies before and after the adoption of profit sharing.

Finally, the Kruse review addressed the question of whether profit sharing may simply be a proxy for other personnel policies, and whether profit sharing interacts with information-sharing and other policies designed to make better use of employee ideas and skills. While a key prediction of stability theory is that profit sharing should lead to employment stability, the mix of evidence he collected does not support a clear conclusion on the verdict of the stability theory.

**Unionisation**

The presence of a union will influence the decision to adopt profit sharing. The union must be negotiated with in order to agree on exclusion of the union, inclusion, or a profit sharing agreement exclusively with the union, excluding non-unionised employees. The union will

be most concerned about the impact on present pay arrangements. Obviously the union prefers profit sharing to be added to base wages, delivering additional compensation when profits warrant it. Conversely, management might wish to reduce base pay, letting profit sharing make up or, in a good year, exceed the reduction, thus making total compensation sensitive to the company's ability to pay (Peck, 1994). A potential motivation for employers to adopt profit sharing is to discourage unionisation. The reasoning is that by encouraging a focus on profitability, profit sharing may cause employees to identify more closely with employers, thus discouraging the adversarial act of unionising (Lindop, 1989). Mitchell, Lewin, and Lawler (1990) reported that unionised workers were less likely to be covered by profit sharing. Cooke (1993) suggests that due to lower base pay in nonunion settings, the profit share may be a better motivator since it is a larger portion of total compensation, therefore, it appears to have much greater effects in nonunion than in unionised settings. Among unionised groups, only 15 percent of clerical and 18 percent of production units were covered, while the corresponding numbers for nonunion groups were 42 percent and 46 percent. However, profit sharing became much more prevalent among union workers in the 1980s, particularly in the manufacturing sector, as shown by Bell and Neumark (1993).

## International Growth and Prevalence of Profit Sharing

To compete in a global economy, companies must look to control costs and to more closely tie performance to compensation through pay methods and benefits provision (Tudor et al., 1996). It is hard to find an industrialised country today that does not have a policy for promoting increased participation by workers in the management, ownership, or financial performance of their firms (Kaufman and Russell, 1995). Data on international trends are extremely sparse. The prevalence in Canada appears similar to that in the United States: two surveys indicated profit sharing at 22.2 percent of Canadian firms in 1985, and 17.3 percent in 1989/90. The difference apparently reflects not a decline in profit sharing, but a tighter definition and different method in the later survey (Long, 1989; Long, 1992). Jones and Pliskin (1991) analysed results from a 1987 survey of 313 Canadian organisations. Results indicated that the existence of profit sharing for any nonmanagerial employees was associated with higher voluntary turnover rates and higher managerial evaluation of worker performance, whereas profit sharing for production employees was associated with a lower proportion of workers unionised, lower capital/labour ratios, and higher evaluations of worker performance.

It is clear that profit sharing is a common practice in a number of European countries (Uvalic, 1990;

Perry, and Kegley, 1990; D'Art, 1992). The PEPPER report (Promotion of Employee Participation in Profits and Enterprise Results) documents the extent of profit sharing and employee stock ownership schemes, and government policies affecting such schemes, among European Community members. One conclusion is that "recently there has been a steady growth of various forms of PEPPER schemes in the majority of European Community countries, with widely different relative weight" (Uvalic, 1990:197). The percentage of employees covered by such schemes is estimated at 18 percent in France, 8 percent in UK, 7.4 percent in the Netherlands, 5 percent in Germany, and 3 percent or less in Ireland, Italy, and Spain (Uvalic, 1990:200). France has been a great champion of profit sharing, having made such plans mandatory in large French corporations since 1968 (Kaufman and Russell, 1995). A study of French manufacturing firms was attempted to predict profit share income as a proportion of the base wage by Cahuc and Dormont (1992). Positive predictors were found to be the base wage level and capital stock, while negative predictor was the firm's market share in the preceding year. Germany has long given priority to workers' participation in the governance of their firms. Since the 1950s, German law have required a workers' council in every substantial workplace and representation for workers on corporate boards (Kaufman and Russell, 1995). The use of profit sharing in a 1989 sample

of 136 German firms (45 of which had profit sharing) was examined by Carstensen, Gerlach, and Hubler (1992). Firm size was found to be a positive predictor of profit sharing use, as were workers' councils and high training expenditures. Profit sharing was more likely among firms that had little competition in the product market, but equally likely among union and nonunion firms.

There has been particularly strong interest in profit sharing in the United Kingdom, spurred in part by its potential to reduce unemployment. Compared to the USA, employee share ownership plans are relatively recent development (Pendleton et al., 1995). Within the United Kingdom, cash profit sharing was found in 20 percent of establishments in the 1984, although only 9 percent of private sector workers reported participating in profit sharing in 1987. Profit sharing was found to be more common in large plants, but just as common for union members as for other employees (Blanchflower et al., 1991:4-5). Results from a 1988 survey of 180 of the largest publicly held UK companies indicated that 6.1 percent had cash-based profit sharing for all employees (Peel, Pendlebury, and Groves, 1991). Poole and Jenkins conclude: "our data suggest that an improved profit performance is frequently the trigger mechanism for the adoption of schemes" (1990:95). These findings of positive associations were supported by Wadhwani and Wall's (1990) study of 101 British firms. The prevalence

appears to be increasing, spurred largely by tax incentives, Singleton-Green reports that the number of plans and employees covered doubled between 1991 and 1992, so that 700,000 employees are now covered (1992:38). A number of major U.K. companies, such as Rank Xerox, are planning to transform their pay systems to take advantage of the tax benefits of profit related pay. By linking pay to the performance of a company, employees can convert 20 percent of their salary , or four thousand Pounds, (whichever is the lower), to tax-free profit pay. The increased interest in profit related pay does not appear to spring from enthusiastic human resource professionals. In fact, figures from Inland Revenue shows that the initial proposal to implement profit related pay is made by the personnel director in just one in every fifty cases. Reluctance to accept profit related pay may stem in part from concern that the government could change its tax advantages (Thatcher, 1995).

Data on profit sharing in non-European countries are difficult to find. Florkowski (1991:102) reports that 12 non-European countries have some form of mandatory profit sharing in the constitution or statutes, but in several of these countries it is not enforced. These countries are Bolivia, Brazil, Chile, Columbia, Ecuador, India, Mexico, Nigeria, Pakistan, Panama, Peru, and Venezuela. A major effort has been made in Singapore to encourage the use of

profit sharing for both productivity and stability reasons, and more than half of the labour contracts in Singapore now contain profit sharing (National Wages Council, 1986). The extensive use of bonuses in Japan and Korea has been viewed as a form of profit sharing that may have contributed to the economic success of those countries (Freeman and Weitzman, 1987; Kim, 1988). While nearly all Japanese firms with more than 30 employees pay bonuses twice a year to regular employees, only 24.6 percent of firms have a formal profit sharing plan (Jones and Kato, 1992). Major companies in Japan, which are famous for their no-layoff policies, pay about a third of their wages in the form of bonuses that are implicitly tied to the companies' profits (Kinsley, 1991).

Therefore, while the practice of profit sharing may be slowly growing in the United States, it is not clear to what extent this is true outside of the United States. At a minimum, profit sharing is a very important topic of interest internationally, as legislation and public policy discussion make clear (Uvalic, 1990; Florkowski, 1991).

**Summary.** The empirical studies included in published reviews of profit sharing literature have been characterised as being inconclusive due to the absence of accepted scientific methodology. However, some conclusions can be drawn based upon these empirical studies. Participation was the dominant focus of many of the studies. Findings indicated that management's attitude toward

employee participation is a critical determinant of the success of a profit sharing plan. Also, varying levels of participation in suggestion systems exist according to employees' personal characteristics, their attitudes toward the organisation, and their expectancies about suggestion making. Another common focus of the early studies was the effects of successful plans. Common outcomes of profit sharing that have been observed are increased levels of teamwork and idea generation, significant cost saving, increases in productivity, and improved labour-management relations. The review of the empirical literature will be completed in the following part of this section which pertains to more recent profit sharing studies.

**Recent Profit Sharing Studies**

Recent empirical profit sharing studies differ from earlier studies in that they are characterised by larger samples, having more cross-sectional and longitudinal research designs, and using more sophisticated and advanced statistical methods. The focus of these studies has been primarily on the issues of how profit sharing affects organisational performance. A secondary focus has been on identifying situational variables associated with variations in profit sharing effectiveness.

The most commonly observed direct effect of profit sharing on organisational performance has been positive changes in productivity (Mohrman et al., 1987; O'Dell, 1987;

Schuster, 1984a; U.S. General Accounting Office, 1981; Mitchell, 1995). Another direct financial effect of profit sharing is increased levels of employee pay due to the bonuses generated by profit sharing plans (Mohrman et al., 1987; O'Dell, 1987; Schuster, 1984a). Weitzman (1984; 1985) has argued that introducing performance related pay into an economy with rigid wages may encourage employment growth and increase labour market flexibility. Kruse contends that profit sharing is understood here to encompass any system which has a direct link between the profit of a company in a particular period and the compensation of employees in that period. Broadly speaking, profit sharing can be hypothesised to improve company performance through increasing worker effort, increasing the skills of the workforce, and increasing the flow of information within the organisation (Kruse, 1992). Positive changes in absenteeism and turnover rates are also effects of profit sharing that directly affect organisational performance (Hatcher & Ross, 1986; Schuster, 1984a; U.S. General Accounting Office, 1981; Kruse, 1992). A final direct effect is improvement in the product quality levels (Hatcher & Ross, 1986; O'Dell, 1987; Bhargava, 1994; Mitchell, 1995).

Less direct effects of profit sharing on organisational performance are observed changes in employee behaviour, and in employee and management attitudes. A significant change in employee behaviour that has been

reported is increased levels of suggestion making, teamwork, and cooperation in implementing changes (Hatcher & Ross 1986; O'Dell, 1987; Schuster, 1984a). Gross and Bacher (1993:55) note the importance of a "supportive culture" in which "teamwork, trust, and involvement at all levels are important". Another indirect effect is improvement in labour-management relations (o'Dell, 1987; U.S. General Accounting Office, 1981). Also , managers' attitudes toward their own jobs and their subordinates have improved due to profit sharing participation (Hatcher & Ross, 1986).

The findings of a study conducted by Mohrman and his colleagues (1987) are somewhat inconsistent with other recent profit sharing studies. Mohrman et al. (1987) reported no changes in employee behaviours, yet improvements in productivity did occur. Their findings were also inconsistent with much of the earlier empirical researches, because no changes in employee satisfaction and other general attitudes were realised. The only realised effects of profit sharing were positive changes in cognition and attitudes directly related to profit sharing, such as understanding of, and preference for profit sharing.

A secondary and much less common area of recent empirical profit sharing research has found an identifying situational variables which influence the effectiveness of profit sharing. These findings may be grouped into two categories: (a) those relating to organisational

characteristics, and (b) those relating to employee characteristics. The financial profitability of the firm (Hatcher & Ross, 1986; Labate, 1993; Bhargava, 1994; Mitchelle, 1995) and its ability to assure stable levels of employment (O'Dell, 1987; Kruse, 1994) are two organisational characteristics associated with profit sharing success. Other characteristics are the integrity of a firm's information and measurement system (Hatcher & Ross, 1986), and the extent to which the organisation has a high involvement design which is perceived as congruent with a profit sharing plan (Mohrman et al., 1987). An employee characteristic found to be situationally related to profit sharing effectiveness is whether employees have high needs for achievement and dominance, and low needs for autonomy (Dreher, 1980). Also the extent to which employees are generally dissatisfied and have low levels of confidence and trust in management has been found to effect profit sharing success (Cable & Fitzroy,1980; Graham-Moore & Ross, 1983; Florkowski, 1992; Scott, 1995). Profit sharing works best in a participative culture where there is mutual trust and a two-way flow of communication (Peck, 1994).

**Summary.** Recent profit sharing studies have focused on the two primary issues of measuring the outcomes of profit sharing with respect to change in organisational performance, and determining what situational factors are associated with profit sharing success. The results of these

studies suggest that profit sharing is often associated with positive organisation-wide change in employee attitudes and performance levels. The exact nature of these changes and the importance of situational factors changes are critical issues remaining to be studied.

## Organisational Communication Literature

**Organisational communication perspective of profit sharing.** A weakness of existing profit sharing research and theory is that it attempts to establish a rather large logical leap from profit sharing participation to change in organisational outcomes such as employee satisfaction, commitment, and other quality of work life variables. The traditional organisational behaviour perspective, with an emphasis on employee participation and involvement, is too broad a perspective from which to understand how the profit sharing process works. It ignores many of the intermediary or intervening effects that occur between participation in a profit sharing plan and changes in satisfaction, and commitment. A more focused perspective with less distance between profit sharing participation and its specified effects is an organisational communication perspective. From this perspective profit sharing is viewed as an organisational communication structure or channel with the purpose of enabling the organisation to effectively fulfill its information processing needs. This shift in research perspective from the broad organisational behaviour and

quality of work life position to focus on more intermediate effects will reveal how profit sharing operates to fulfill information processing needs which then leads to less immediate change in the quality of work life variables.

Previous research suggests that this shift in research perspective is viable. Graham-Moore & Ross (1983) observed that the committee structure in a profit sharing plan becomes a mechanism for organisational communication. Lawler (1985) predicted that profit sharing would increase organisational performance to the degree that it provides communication about organisational performance to all employees. Mohrman and his colleagues (1987) proposed that one of the more direct effects of profit sharing would be a change in communication and problem-solving styles among organisational members. O'Dell (1987) observed high levels of information sharing in profit sharing organisations. She attributed this to the existence of smooth and frequent communication among organisation members which led to an increased awareness of the need for cooperation to accomplish group and organisational objectives.

According to Charles Peck (1994), since profit sharing often has the objective of building employee morale, open communication are desirable to foster trust between management and workers. Management must believe that employees have the understanding and motivation requires to grasp the plan's objectives. Reciprocally, employees must

trust management to establish goals that are realistic, achievable and that will provide fair and meaningful rewards. The initial communication of the profit sharing plan should emphasise such openness. The specific techniques used, however, will vary with the individual organisation. For instance, a large, high technology company uses video presentation, while another manufacturer uses department meetings, and a third, relatively small service company, had a meeting of all employees with the CEO. Because profit sharing tries to further a culture of participation and gives employees a sense of identity with the company by sharing in its success, it is desirable to have a communication system that explains the goals at the beginning of the profit sharing period, reports on the progress of the fund during the period, and reports the outcome. It is desirable that the communication mechanism be a two way channel, where employees not only receive information from management, but also make suggestions and give management feedback that might be useful (Lesieur, 1958; Shultz, 1958; Vanek, 1970; Conte, 1982). Kandel and Lazear (1992) and Lazear (1992) note that the empathy with co-workers that may be built through communication can help develop and enforce worker norms that support higher performance. While sharing sensitive information with employees may have positive or negative consequences for the firm, it is commonly believed that profit sharing plans have

more positive effects when the companies make extra efforts to share information with employees. Such information sharing is a plausible part of establishing and maintaining worker norms in the cooperative solution to the problem of diluted individual incentives (Kleiner and Bouillon ,1988, 1991). Scott (1995) concludes that when a profit sharing system breaks down, it is often because employees have not been kept informed.

In this section of the literature review the theoretical basis for an organisational communication perspective of profit sharing will be briefly presented. Profit sharing will first be discussed in the context of a definition of communication, and then in relation to an information-processing model of organisational design. Finally the measurement model of organisational communication used as a basis for the specific research hypothesis of this study will be described.

**Definition of communication.** Drawing from the works of several authors (Barnlund, 1964; Berlo, 1960), communication is defined broadly as a purposeful process with multiple outcomes. It is actually two separate processes of sending messages and receiving messages in an effort to create shared meaning. Communication serves a pragmatic function because it provides humans with a means of controlling and manipulating their environment. The general goal of communication is to enable individuals to

make sense of people, things, and events through interactions with other people. In order for the communication process to occur the components that must be present are a sender, a message, a channel, and a receiver (Berlo, 1960). Senders are those individuals who initiate communication or are the source of the message. Receivers are those individuals who "pick up" messages. A message is little more than a physical signal and may be either the source's intent or whatever is picked up by the receiver. Channels are the mediums that carry messages from one place to another.

Effective communication is defined as that which occurs when senders and receivers send messages to each other through channels with the result of achieving some degree of shared meaning among themselves. In this way they are able to make sense of and control their environment. Possibly the greatest means for increasing communication effectiveness is to increase or improve feedback. Feedback is the process that takes place when senders and receivers use their own output to gauge the effect of their attempts to communicate and make the necessary adjustments required to achieve their intended meaning (Littlejohn, 1983).

The relevance of profit sharing to this conceptualisation of communication is that a profit sharing plan is a channel through which the organisation and its members send massages to each other. Through suggestion

committees and bonus checks, managers and non-managers attempt to increase the shared meaning between them, control or manipulate their work environment, and provide feedback to each other about the effects of their communication with each other. Profit sharing suggestion committee structures or participation mechanisms function mainly as the channel through which organisation members send and receive task-related, problem-solving messages. Profit sharing bonus formulas and the resulting bonus checks function mainly as channels through which organisation members receive feedback pertaining to the effectiveness of organisational communication about task-related, problem-oriented issues.

**Information processing framework.** The relevance of profit sharing to communication also is reflected in its consistency with the information processing model of organisational communication. Various authors have used this theoretical framework to integrate communication with structural and design characteristics of organisations (Alexander, Helms, Curran, 1987; Galbraith, 1977, 1974; Goldhaber, Dennis, Richetto, & Wiio, 1984; Penley, 1982; Tushman & Nadler, 1978; Kruse, 1992). In the model, information is treated as a change in knowledge that results as a consequence of gathering, interpreting, and synthesising data (Penley, 1982). Organisations are treated as mechanisms needed to process information (Alexander & Curran, 1979). A basic proposal of the information

processing model is that different organisational designs have varying capacities for information processing (Galbraith, 1977). Some designs permit faster processing of information than others, while some are able to process information with less distortion, and some are able to handle more diverse forms of information. Galbraith (1977) contends that the effective organisation is one that alters its deign to maintain a match between the information processing capacity of its design and the information processing demands of its task.

Within the context of this model of organisational communication, profit sharing is perceived as a variance or option in organisational design and structure. Profit sharing may be an appropriate design response if the information processing demands of a organisation's task are such that task-related, problem-oriented information needs to be effectively processed because of a need for innovation, cooperation, and reduced resistance to change among organisational members. The employee suggestion or participation mechanism and the bonus formula are options in hierarchical design and reward structures, respectively, that are oriented towards altering the information processing capacity of an organisation.

**Summary.** Profit sharing is theoretically consistent with accepted definitions of the communication process and with the information-processing model of

organisational communication. This consistency and previous profit sharing research findings provide support for an organisation communication perspective of profit sharing research.

**Measuring organisational communication.** An important issue in the development of a fruitful research perspective is the measurement of the constructs inherent in the theoretical framework. That issue will be addressed with respect to the proposed research perspective by presenting a specific measurement model of organisational communication that is relevant to profit sharing research.

A key concern in the measurement of organisational communication is the issue of differentiating between communication behaviours and communication outcomes. Lack of attention to this issue has resulted in a general incomparability of much of the organisational communication research (Alexander & Penley, 1980). The measurement model that will be integrated into the organisational communication perspective of profit sharing research, presented in figure 4, explicitly differentiates between behaviours and outcomes and assigns an important function to each.

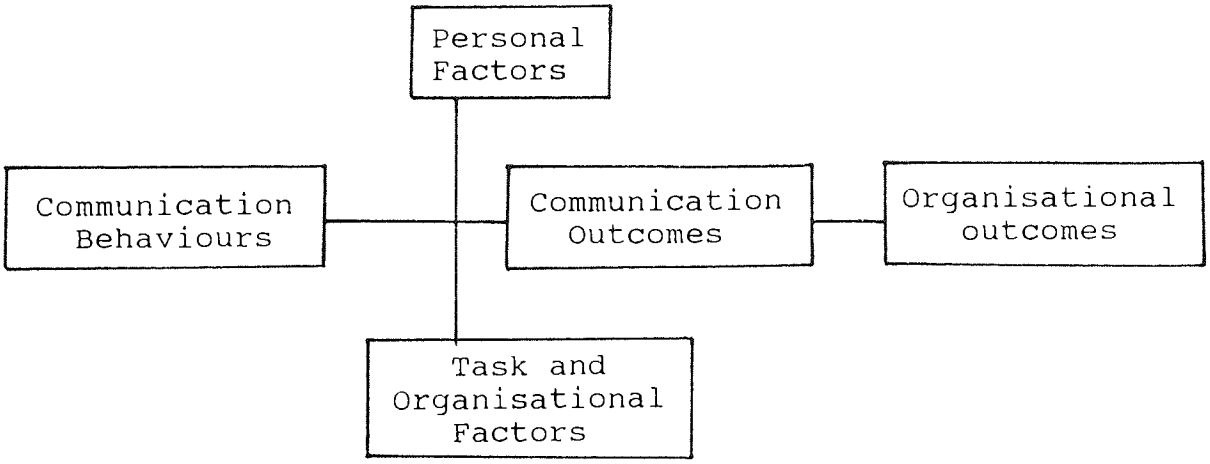



Figure 4: Organisational Communication Measurement Model.

In the Alexander and Penley model (1980) communication behaviour is that part of the communication process which can be observed by organisational incumbents when attempts to communicate with them are made. Observed communication behaviours include supervisory communication style, amount of time and energy devoted to communication within a superior and a subordinate, and the number and types of messages sent by one's superior, peers, or other members of the formal organisation in general. In the model, communication outcomes are the beliefs or perceptions that organisational members have regarding the consequences or outcomes of superiors', peers', or the formal organisation's attempts to communicate with them. Communication outcomes include trust between subordinate and superior, perceived accuracy of communication, a subordinate's desire for a certain level of communication with his or her supervisor,

and subordinate satisfaction with superior communication. A more global conceptualisation of communication outcomes is communication climate, which is the degree of supportiveness, trust, openness, and candor present in a organisation (Dennis, 1974; Goldhaber et al., 1984; Peck, 1994). Another communication outcome that could be included in this model and which is consistent with the information processing model of organisational communication is the level of information adequacy. Penley (1982) describes the level of information adequacy as an operationalisation of the match between information requirements (the perceived extent to which information is needed) and information processing capacity (the perceived extent to which information is currently received), a measure of discrepancy.

As indicated in Figure 4, communication behaviours lead to communication outcomes which then lead to organisational outcomes. Organisational outcomes are those consequences that define the ultimate effectiveness of the organisation such as productivity, turnover, quality of work life, and overall employee satisfaction. By differentiating between communication behaviours, communication outcomes, and organisational outcomes, the Alexander and Penley model (1980) focuses research attention on the intervening effects of organisational communication upon organisational outcomes, instead of the direct effects of communication

variables upon organisational variables.

This measurement model is relevant and useful to the study of profit sharing because it is consistent with the focus on intervening or intermediate effects that is advocated by a shift to an organisational communication perspective of profit sharing research. It is reasonable to assume that the use of profit sharing as a channel of communication will lead first to changes in the communication behaviours of participants, which will lead to changes in communication outcomes, which will eventually lead to changes in organisational outcomes. The model will be especially useful in formulating specific profit sharing research hypotheses as a means of separating the hypothesised and final effects of profit sharing participation.

# Chapter 4

# INTEGRATED RESEARCH MODEL OF PROFIT SHARING

Based upon the conclusions drawn from the review of the profit sharing and organisational communication literature presented in this chapter, an integrated research model of profit sharing was developed. The integrated research model and the specific hypothesis and research questions of the study will be presented in this section.

Figure 5 portrays an integrated theoretical model of the profit sharing process that incorporates the assumptions and variables of existing models and theories of profit sharing. A basic premise of the model is that at the organisational level the effects of the participation mechanism component of profit sharing plan will be moderated by the fit or congruency between the organisational context and the participation mechanism. Another assumption of the model is that at the individual level the most important relationship is the influence of the bonus formula on employee behaviour. The specification of the "Integrated Model of Profit Sharing" (Figure 5) and the "Profit Sharing Study Scales" are based largely on work done before 1987. Following a review of more recent theoretical and empirical work in this area (see Chapters 2 and 3), it was concluded that there have been no substantial development since then,

which would require modification of the model and study scales.

In the following paragraphs each variable in the model will be described in terms of the basis found for it in the existing literature and its proposed relationship to other variables.

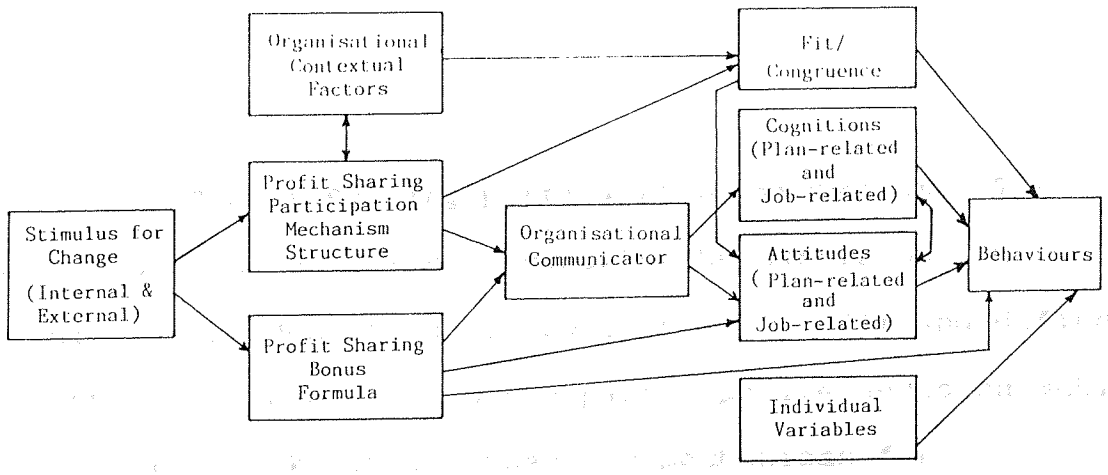



Figure 5: Integrated Model of Profit Sharing.

**Stimulus for change.** Variable of existing models incorporated into stimulus for change are the socio-cultural-institutional and financial variables (Graham-Moore

& Ross, 1983), and identity (Frost et al. 1974). Also implied in this component of the model are the conditions identified by Lawler (1986) as forces for change in the 1980's. Inclusion of this component into the integrated model is consistent with profit sharing theory (Florkowski, 1987) and observations by Schuster (1984b) that the specific stimulus or stimuli for change cited by managers will directly influence managers' attitudes towards the profit sharing process, its ultimate design, and its final adoption. This component of the integrated model is an improvement over previous models because it more clearly indicates the explicit influence of the external environment on profit sharing effectiveness.

**Profit Sharing participation mechanism.** The participation mechanism represents the participation condition as identified by Frost et al. (1974) and defined by others in reference to the participative decision making literature (Peck, 1994). Specific mechanisms for participation in particular plans may vary from being very structured and formal, as with the hierarchical committee structure of the Scanlon Plan, to being informal and more loosely structured (Doyle, 1983). As stated in the major research proposal of this study, the profit sharing participation mechanism is expected to directly impact the nature of organisational communication.

**Organisational contextual factors.** Organisational contextual factors in the integrated model, include managerial philosophy (McGregor, 1960), managerial practices (Doyle, 1970; 1983), and organisational variables (Graham-Moore & Ross, 1983). It is proposed that the nature of the organisational context and the level of participation it supports will moderate the design of the profit sharing participation mechanism. Also, over time the participation mechanism may be expected to affect the organisational context.

**Congruence.** A significant aspect of the variance in the nature of the participation mechanism has been conceptualised by previous theorists as being the congruence or fit between the organisational context and the participation mechanism (Graham-Moore & Ross, 1983; Lawler, 1985; Mohrman et al., 1987; Peck, 1994). Congruence is the extent to which the organisational context and the profit sharing participation mechanism are consistent with and supportive of each other. In the integrated model it is proposed that the congruence, or lack of it, between the profit sharing participation mechanism and the organisational context will moderate individual employees' cognitions and attitudes.

**Cognitions.** Inclusion of individual cognition as a variable in the integration model draws upon the Mohrman

et al. (1987) model. It represents the beliefs employees form, or the knowledge employees gain, as an indirect result of the adoption of the profit sharing participative mechanism and as a direct result of the quantity and quality of organisational communications. These cognitions include those pertaining to the profit sharing plan itself, the employee's job, and the organisation as a whole. Based upon their cognitions, employees are expected to exhibit work behaviours that they believe are consistent with what they "know" about their job, the organisation, and the profit sharing plan itself.

**Attitudes.** Attitudes are a significant component of the integrated model as they reflect the primary orientation of much of the previous profit sharing research. Bullock and Lawler (1984) and Kruse (1993) hypothesised that the basic reason profit sharing works may be due to the change in attitudes, from individualistic to cooperative, which occurs throughout a profit sharing organisation. Also, much of the descriptive and empirical literature reflects a bias towards the hypothesis that a change in employee attitudes is the most significant factor in explaining the effects of profit sharing (Schuster, 1983; Florkowski, 1987; Weitzman and Kruse, 1990). In specific terms, the attitudes component incorporates the equity condition (Frost et al., 1974; Scott, 1995), commitment (Schuster, 1984b), and attitudes towards profit sharing, pay, the job, and the

organisation (Mohrman et al., 1987; Kinsley, 1991). Attitudes are predicted to be directly related to behaviours.

**Bonus formula.** The bonus formula is proposed to be the mechanism through which equity is created and maintained (Frost et al., 1974; Schuster, 1984b). Therefore, it is portrayed in this model as being related to employee attitudes. Since the practitioner literature emphasised the effects that bonus formula complexity will have on how well it is communicated and understood by employees (O'Dell, 1981; Doyle, 1983; Kruse, 1992), it is proposed in the integrated model that the nature of the bonus formula will affect organisational communications. A very significant aspect of the bonus formula in this model is its relationship to behaviour in terms of the influence that the instrumentality created between performance and pay has on an individual's choice of behaviour (Bullock & Lawler, 1984; Goodman, 1973; 1976; Lawler, 1985; Schuster, 1980; Kruse, 1993).

**Organisational Communications.** This component of the integrated model is not specifically mentioned in any of the profit sharing models reviewed. However, based upon previous research and theoretical propositions, it may be a useful component in terms of conceptualising the link between the organisational and individual levels of analysis

of the profit sharing process (Graham-Moore & Ross, 1983; Lawler, 1985; Mohrman et al., 1987; O'Dell, 1987; Lazear, 1992; Kandel and Lazear, 1992). A major proposal of the integrated model is that introduction of profit sharing into an organisation will alter or actually become the communication structure which links management and non-management personnel. In turn, the cognitions and attitudes formed by profit sharing participants will be directly influenced by the quantity and quality of input and feedback received from the plan derived communication structure.

**Individual variables.** Included in this component are the individual level variables identified by Graham-Moore & Ross (1983), such as one's propensity to trust others, one's locus of control, and one's skill level. Skill level would include not only specific job skills, but also the skills needed to generate suggestions and become involved in a participative management system (Goodman, 1976; Kruse, 1993). Also included within this variable are the individual needs reflected in various motivation theories (Frost et al., 1974; McGregor, 1958; White, 1979). Individual variables are proposed to be related to all of the individual level variables in the model: cognitions, attitudes, and behaviours.

**Behaviours.** This component includes the behaviours hypothesised to be directly and indirectly

affected by profit sharing in Mohrman et al. (1987) model. They include employee suggestion-making, employee effort, problem solving, cooperation within the work group, cooperation between work groups, and team functioning.

**Summary.** According to the integrated model, the profit sharing process begins with an impetus for change which leads to a management decision (influenced by certain contextual factors) to develop and adopt specific employee participation mechanisms and a group bonus plan. The particular participative mechanism in turn affects organisation communications (between subordinated and their peers, their immediate supervisors, and the formal organisation or non-immediate superiors, and administrative personnel). Depending upon the extent of congruence or fit of the participative mechanism and bonus formula with the existing organisational contextual factors, the resulting nature and level of organisational communications will affect cognitions and attitudes. Ultimately, either directly or indirectly, the participative mechanism, bonus formula, and organisational communications, all influence the job related behaviours of profit sharing participants which determine organisational outcomes.

This integrated conceptual model of profit sharing process will provide a framework from which to develop testable hypotheses as to how profit sharing actually works and the causal relationships between significant dependent

variables. Relative to the model, the primary purpose of this dissertation is to establish support or nonsupport for previously tested hypotheses, implicit in the integrated model, that profit sharing participation affects QWL and organisational performance variables. A secondary purpose is to examine the virtually untested general hypothesis that profit sharing participation affects organisational communication.

## Hypotheses and Research Questions

In the following section the specific hypotheses of this study will be listed. These hypotheses all relate to the basic question of how the profit sharing process actually works and follow directly from conclusions drawn from the literature review and the proposals presented in the integrated profit sharing model.

**Communication behaviours:**

Hypothesis 1a. Participants in profit sharing will report higher occurrences of positive supervisory communication behaviours than will nonparticipants.

Hypothesis 1b. Participants in profit sharing will report higher occurrences of positive co-worker communication behaviour than will nonparticipants.

Hypothesis 1c. Participants in profit sharing will report higher occurrences of positive administrative communication behaviours than will nonparticipants.

Hypothesis 1d. Participants in profit sharing will report higher level of individual idea communication behaviour than will nonparticipants.

Hypothesis 1e. Participants in profit sharing will report higher levels of work group idea communication behaviour than will nonparticipants.

This group of hypotheses will test the proposed effects of the profit sharing process on organisational communications. As discussed in chapter two, these hypotheses are consistent with the results of previous researches and for the sake of clarity the specific references will again be summarised. Graham-Moore and Ross (1983) observed that the committee structure in a Scanlon Plan became a mechanism for organisational communication. Mohrman et al. (1987) predicted that one of the effects of profit sharing would be a change in communication and problem-solving styles among organisational members. O'Dell (1987) reported that organisations with profit sharing, share information in terms of both financial-competitive data and work group feedback, more often than organisations with any other type of non-traditional reward systems. Based upon her findings O'Dell goes to develop the following propositions as to why information sharing occurs more frequently in profit sharing organisations:

1. Employees need more information in order to appropriately participate in the suggestion systems and

participative decision making structures inherent in profit sharing, and this need is probably more apparent and legitimate to management.

2. Employees covered by a profit sharing plan have a much larger stake in the organisation's performance and probably request more information.

3. Profit sharing often changes the culture in an organisation to foster teamwork and a sense of common fate. As a result, communications in general are smoother and more frequent as employees become more aware of their need to cooperate with one another to accomplish group and organisational objectives.

Idea generation or suggestion making is a specific communication behaviour that has been observed and measured previously within the context of profit sharing (Bullock & Lawler, 1984; Lesieur, 1958; Mohrman et al., 1987; O'Dell, 1987; Shultz, 1958; Schuster, 1984; Whyte, 1955; Peck, 1994).

Hypotheses 1d and 1e will test the effects of profit sharing participation upon idea generation in this study.

**Communication outcomes:**

Hypothesis 2a. participants in profit sharing will report more positive assessments of the communication climate than will nonparticipants.

Hypothesis 2b. Participants in profit sharing will report higher levels of information adequacy than will

nonparticipants.

Hypothesis 2c. Participants in profit sharing will report higher levels of knowledge and understanding of general profit sharing concepts than will nonparticipants.

Hypothesis 2d. Participants in profit sharing will report higher levels of identification with the organisation than will nonparticipants.

This group of hypotheses will test the impact of profit sharing participation on communication outcomes. Specific outcomes which profit sharing is hypothesised to affect are those commonly accepted as constituting outcomes of communication such as:

1- climate (Dennis, 1974; Goldhaber et al., 1984; Roberts & O'Reilly, 1974),

2- information adequacy (Penley, 1982),

3- understanding (Anderson, 1959), and

4- identification (Barlund, 1964; Burke, 1966).

**Organisational outcomes:**

Hypothesis 3a. Participants in profit sharing will report higher levels of internal work motivation than will nonparticipants.

Hypothesis 3b. Participants in profit sharing will report higher levels of job satisfaction than will nonparticipants.

Hypothesis 3c. Participants in profit sharing will report higher levels of pay satisfaction than will

nonparticipants.

Hypothesis 3d. Participants in profit sharing will report lower levels of intention to quit than will nonparticipants.

Hypothesis 3e. Participants in profit sharing will report higher levels of organisational commitment than will nonparticipants.

Hypothesis 3f. Participants in profit sharing will report lower levels of alienative commitment than will nonparticipants.

Hypothesis 3g. Participants in profit sharing will report lower levels of calculative commitment than will nonparticipants.

Hypothesis 3h. Participants in profit sharing will report higher levels of cooperative behaviour than will nonparticipants.

Hypothesis 3i. participants in profit sharing will report more positive attitudes towards profit sharing than will nonparticipants.

The impact of profit sharing participation upon QWL variables will be tested in hypotheses 3a through 3g, in an effort to establish support of previous research findings (Bullock & Lawler, 1984; Frost et al., 1974; Lawler & Ledford 1982; Mohrman et al., 1987; Ruh et al., 1973; Schuster, 1984; U.S. General Accounting Office, 1981; Kruse, 1993; O'Neil, 1994). An indirect effect of profit sharing,

which is changes in cooperative behaviours and has been previously observed (Lesieur, 1958; McKersie, 1963; Mohrman et al., 1987; Moore & Goodman, 1973; Scanlon, 1947; 1949; Slichter et al., 1960; Weitzman and Kruse, 1990) will be tested by hypothesis 3h. Logically, general cooperative behaviours should be a natural outgrowth of the more positive communication behaviours resulting from profit sharing participation (H1a, H1b, H1c) and the positive attitudes and cognitions (H2a, H2b, H2c, H2d) resulting from those behaviours. Hypothesis 3i will test for the direct effects of profit sharing participation on attitudes towards profit sharing, a variable previously examined by Mohrman et al. (1987).

**Research question 1.** Will profit sharing provide measurable improvements in productivity and service quality to the participating organisational unit?

The most consistently observed effect of profit sharing, a change in organisational productivity and effectiveness (Bullock & Lawler, 1984; Mohrman et al., 1987; O'Dell, 1987; Schuter, 1984; U.S. General Accounting Office, 1981; Wilson and Peel, 1991; Kruse, 1993) will be examined by this research question.

This effect of profit sharing upon the organisation was not tested in a formal research hypothesis because the focus of this research is on the intervening effects of the profit sharing process rather than on the

final outcomes. However, in the interest of establishing the comparability of this study with other studies, which frequently address the issue of final outcome effects, this issue was included as a research question. Also, the particular research design chosen for hypotheses testing in this study required comparative data that were not available for this particular set of dependent variables.

**Research question 2.** Will participation in a survey study of profit sharing have an interaction effect on employee attitude?

This research question will test for the presence of possible threats to the internal validity of the findings of this study that may be inherent in the quasi-experimental research design (Cook & Campbell, 1979).

**Summary.** The preceding set of specific research hypotheses and questions provided the basis upon which this research study was designed. In general, the hypotheses are testing the effects of profit sharing on communication behaviours, communication outcomes, and organisational outcomes. The results of these tests will either support or reject the overall notion that profit sharing process operates by acting as a communication channel and causing intervening changes in communication behaviours and outcomes which ultimately lead to changes in final organisational outcomes. In the following chapter the research design and

method used for testing these hypotheses will be described in detail.

# Chapter 5

# METHODOLOGY OF EMPIRICAL EXPERIMENT

## Overview of the Research Study

Testing of the hypotheses and research questions, occurred in a quasi-experimental study of a profit sharing plan adopted by Shahvand Industrial Company (SIC) at their Saveh manufacturing facility.

Shahvand Industrial Company was established in 1963 in Tehran, Iran. SIC is the recognised leader in the production of technical rubber articles in the Middle East, with annual sales of $52 million in 1989 and a work force of approximately 800 employees (author). The author previously served as the President of SIC and has detailed information on the operations and finances of the company. SIC expanded their activities by addition of a major moulding and shipping plant in Saveh, about 80 miles away from the main plant. Expanding the main plant was not feasible due to the fact that the authorities had ceased issuance of expansion permits in the capital city. This regulation had gone into effect pursuant to a decentralisation policy adopted by the government due to the overpopulation of Tehran. Therefore, in spite of numerous financial, managerial, and demographic problems, SIC was forced to erect the new factory away from the original plant. Operation begun at the new facility in

January 1987 with a work force of approximately 150 hourly, permanent-part-time operational employees. Opening of this branch provided SIC with the opportunity to develop the profit sharing concept as part of their strategic efforts to improve their competitive position by reducing operating costs, while at the same time improving product quality and employee QWL.

The study of the profit sharing plan adopted by the Saveh plant included pretests and posttests of permanent part-time, hourly paid operational employees at the Saveh plant participating in profit sharing, and pretests and posttests of similar employees at the Tehran plant, not participating in profit sharing. Elapsed time between pretest and posttest measures was approximately six months.

**Sample**

The sample for this study consisted of permanent-part-time SIC employees. All of the respondents were employed as moulding press operators, an hourly position in manufacturing operations. The primary job responsibility of a moulding press operator is to place the pre-mixed un-vulcanised raw material in the mould cavities, mechanically close the hot press plates, keep the press closed for about 10 to 12 minutes in order to vulcanise (cure) the rubber. Then mechanically open the press, take the products which are now cured, out of the mould cavities using hand-tools such as copper-blade knives, visually inspect the products

in order to sort and separate the rejects, and send the products to the quality control department for final inspection. The finished goods are then counted, weighed, and packed for shipment.

The experimental group consisted of 148 operators assigned to the Saveh plant. These employees all began working at SIC in January 1987. Their employment started with two days of training, followed by one week of practice work. At the time of pretest these individuals had four to five weeks of tenure with SIC. Within the experimental group 59 randomly selected employees participated only in the posttest. The control group consisted of 265 operators assigned to the Tehran plant. These respondents had an average of one year employment tenure with SIC at the time of the pretest. Control group members had longer employment tenure than the experimental group members at the time of the pretest because SIC had stopped hiring permanent part-time operators in Tehran since June 1986. After that date all the operators were hired on a temporary part-time basis, knowing that long term employment was not guaranteed. A decision was made by the researcher to accept control group members with longer tenure than experimental group members because the difference between being hired as a temporary vs. a permanent employee would be greater than the difference between having 5 weeks or one year tenure at the time of the pretest. Within the control group 129 randomly

selected employees participated only in the posttest.

## The Experimental Design

The design used for this study was a nonequivalent no-treatment control group design with pretest and posttest. Two posttest only groups were added to the design which resulted in a four group design of the following configuration:

| | | |
|---|---|---|
| 01 | X | 02 |
| | X | 03 |
| 04 | | 05 |
| | | 06 |

Table 4: The Experimental Group Design

The four groups represented in this design are: (1) "01 X 02", the group that took both the pre and post tests and received a treatment after the pretest, (2) "  X 03", the group that received a treatment but took only the post-test, (3) "04  05", the group that took both the pre and post tests but did not receive a treatment, and (4) "  06", the group that took only the posttest and did not receive a treatment. This type of research design is considered to be a generally interpretable nonequivalent control group design and is perhaps the most frequently used design in social science research (Cook & Campbell, 1979).

**Limitations of the research design.** While the results of this research are often interpretable in terms of making causal attributions, there are significant limitations inherent in the design. The most limiting factor is the use of nonequivalent groups without random assignment to the control and experimental groups. Treatment caused change must be inferred from comparisons between nonequivalent groups that differ from each other in many ways other than the presence of a treatment whose effects are being tested.

In case of this profit sharing study, this general limitation was present to the extent that the experimental group members (Saveh employees) were explicitly and initially recruited to work under the profit sharing programme. They had no prior SIC experience under any other reward system. This of course resulted in non-random assignment to groups. Also, the groups were nonequivalent due to the condition that the control group members (Tehran employees) were part of a large (800 employees) operating site, while the experimental plant was a much smaller unit (150 employees). Other differences between the groups were that the control group was part of an established (24 years) unit and located at the corporate headquarters, while the experimental group was a new unit located 80 miles away. A final source of non-equivalency between the two groups is demographic differences. Specific differences in demographic

characteristics between the control and experimental groups will be reported in Chapter Six.

**Strengths of the research design.** While acknowledging the limitations of the research design is important, even more significant, within the context of profit sharing research, are the strengths of using a nonequivalent control group design with pre and post tests. Most important is the fact that the use of this design greatly reduces the equivocality of interpretation of results over the results obtained in a one-group pretest-posttest design, which is the most sophisticated design used to date in empirical studies of profit sharing (Mohrman et al., 1987).

For purposes of internal validity, use of a control group can be regarded as controlling for the potential effects of history, maturation, testing, and instrumentation, because the differences between pretest and posttest of the experimental group (if greater than the differences between pretest and posttest of the control group) cannot be explained by the effects of these variables since both groups would be effected by them (Campbell & Stanley, 1966:48). Use of posttest only groups increases the external validity or generalisability of the results of the study to the extent that it controls for the reactive effects of testing, in which a pretest may increase or decrease the subject's sensitivity to the treatment. This

may make the results obtained for pretested groups unrepresentative of the effects of the treatment for the nonpretested universe from which the experimental group was selected (Campbell & Stanley, 1966:6). Finally, the field setting of the experiment may be viewed as a strength of the research design due to its effect of increasing the relevance and generalisability of the experiment for both theory and practice over a controlled laboratory setting (Lawler, Mohrman, Mohrman, Ledford, Cummings, & Associates, 1985).

## Independent Variable

Profit sharing participation is the only independent variable in the study and served as the treatment whose effects were tested in this quasi-experiment. The profit sharing plan which was the subject of the study was one component of a four-part trial pay-for-performance compensation plan for hourly employees that was adopted at the SIC's Saveh plant.

The profit sharing plan implemented by SIC was self-designed over a six month period by a 12 member Pay-for Performance Task Force. There were four elements in the final compensation plan developed by the task force. (1) Corporate Profit sharing, referred to at SIC as the "team Q=P (Quality=Productivity) sharing" was the major component of the plan. Other components were: (2) base hourly pay rate, (3) individual skill versatility pay,

(4) individual Q=P bonus (designed to motivate individual discretionary effort, particularly in the area of dependability). In the remainder of this dissertation, "team Q=P sharing" will be referred to as the SIC profit sharing plan. This was designed with the objective of increasing motivational force in performance of work behaviours. These measurable behaviours included the number of items manufactured per working hour, the plant's overall rate of defective products rejected by the quality control department, and on time shipment of packed products. A bonus is paid based on operating performance of the plant for each week. Data are maintained and communicated as to performance on the targeted "bonus behaviours" daily. The results are tabulated for each week and the bonus pool is funded according to weekly plant performance.

Bonus payouts occurred monthly. Operating performance indices are tied to funding formulas for each targeted behaviour upon which the bonus pool was funded (See Appendix A for detailed explanation and examples of the bonus funding formula indices).

The profit sharing plan is self-funded from verified operational savings. Awards to profit sharing participants total 85 per cent of labour savings associated with productivity gains and savings from the reduction of defects and rejects. The remaining 15 per cent of the operational savings is retained by the corporation, five

percent of which added to the employees' social fund. The percentage retained by the company seems to be low, but since this figure represents pure income not including any kind of expense, when added to the overall net profitability of the company, becomes quit lucrative. Employees share equally in the profit sharing bonus pool irrespective of tenure or base pay. All employees at the Saveh plant participate in the profit sharing plan (line and staff, hourly and salaried). The monthly payment to each employee was equal to the amount in the bonus pool divided by the number of eligible employees.

Conventional cost accounting procedures were used to establish the "cost of production" for the targeted performance measures. Bonus opportunities require exceeding threshold operating statistics and costs. Initially these were developed from existing operations data and were to be revised in the future to reflect historical operating performance levels within the Saveh plant as well as the actual operating objectives and conditions of this plant. Also, contingencies were established within the initial bonus formula to reflect varying seasonal operating environments. A committee headed by the plant director and comprised of representative employees is responsible for establishing thresholds and cost allocations as the profit sharing plan operated. A contingency provided in the framework of the profit sharing plan is that the company

may, at its discretion, "buy back" performance improvements by providing a lump sum payment for raising the threshold of a particular index. This situation is expected to occur when technology enters into a process and drastic improvements in quality result.

In the SIC profit sharing plan, the employee involvement structure is provided through employee participation in a company-wide formal quality improvement programme already in effect at SIC and extended to use at the Saveh plant. Shahvand had designed a system to implement quality improvement through the formation of groups called Quality Action Teams (QAT). A typical QAT was a team of 5 to 10 employees from the same work group led by the management designated person responsible for that work group. Membership in a QAT is voluntary except in the case of a "designated problem" QAT when members may be appointed by management to a team and team members may come from several different work groups. The purpose of a QAT is to give all employees the chance to meet in small groups on company time and correct problems related to their work group. Employees were first introduced to the QAT concept during the training period at the beginning of their employment. A presentation is made which explains the SIC philosophy of and commitment to quality improvement and the role individual SIC employees are expected to play in the quality improvement process.

Team members select a specific project which the

group is going to work on. The teams are initially led by the group's manager who has been trained in a four-step problem solving method developed by the company. This four step method consists of focus, analyse, develop, and execute. The managers train team members in the use of this method of problem-solving and then facilitate the groups' use of the method to address the specific quality improvement problem upon which they have chosen to work. Usually, a QAT meets once a week for about one hour to work on its project. During the "focus" stage team members concentrate on clearly identifying the problem and determining what kind of information they would need. During the "analyse" stage they collect necessary data which would be used to generate solution to the problem in the "develop" stage. The final stage of the process is "execute", during which the team devises an action plan for implementing and monitoring the effects of the solution they have developed. During this entire process it is the role of the managers to facilitate the groups' use of the four stage process and to function as a link between the groups and management to determine what solutions will be acceptable to management. However, the managers were not to function in an authoritarian role in the context of QATs. In fact, as the teams become experienced in the four stage problem solving method, the managers may delegate team leadership to informal group leaders.

An example of an improvement that was made by a profit sharing QAT concerns the reduction of hydraulic presses malfunctioning and not opening when the press operator pushes the "open" button. When this happens, the rubber in the mould over-cures (burns) and also down-time occurs, resulting in wasted material, and lower production per shift, per press. This QAT consisted of volunteer members from the press department. They chose to work on developing a systematic check plan that made it possible to inspect the 68 presses periodically. This was achieved by assigning specific mechanics to inspect the presses every three days at lunch break, and change the parts they suspect to malfunction before those parts physically break down and cause the presses not to open. Routinely, the presses were inspected every other month for high-pressure oil leakage and the only time repairs were performed was after a break-down. Over the first three months of the use of this new plan, the presses failed to open approximately 30 time less compared to the preceding quarter. It has been estimated that over the course of one year this plan for frequent inspection of the presses will save SIC approximately $18,000. In terms of the bonus formula, each time the press malfunction rate is reduced, compared to the historical performance levels, $150 is added to the bonus pool.

Within the context of profit sharing research, the SIC profit sharing plan is best described as a self-

designed, modified Scanlon Plan with a moderately formal and structured participation mechanism which allows for high employee involvement. Due to the high involvement management style used by the Saveh plant managers, there should be high congruence between the organisational context and the participation mechanism of the profit sharing plan.

## Definition and Operationalisation of Dependent Variables

The hypotheses of this study were tested using three groups of dependent variables which are described fully in the following paragraphs. For a listing of specific scale items used to operationalise these variables the reader is referred to Appendix B.

**Communication behaviours.** This category of variables identifies specific behaviours observed by organisational members when attempts are made to communicate with them. Three of the variables in this group are subordinate perceptions of supervisory to subordinate communication (SUPVCOM; tested in H1a), co-worker to subordinate communication (HORIZCOM; tested in H1b), and organisation/administration to subordinate communication (ORGCOM; tested in H1c). These three variables were all measured using items selected from the Dennis Communication Climate Survey (Dennis, 1975; 1974) and a communication behaviour scale developed by Hawkins and Penley (1978). In addition, supervisory and co-worker communication behaviours

were measured by five items unique to this study. These items pertain to specific communication behaviours that were expected to occur in this particular work setting. Supervisory and co-worker communication behaviour were measured by 18 seven-point, Likert-type scale items. All of the items measuring these variables attempted to measure the communication style, the nature, and the number of messages sent by a subordinate's superior, co-workers, and the organisation.

Two other variables in this category are individual idea communication (INDIDEA; tested in H1d) and work team idea communication (TEAMIDEA; tested in H1e). These two variables were measured using scales developed by Mohrman et al. (1987) to asses the extent to which employees offer suggestions for improvements in job-related conditions, systems, etc., both as individuals and as working group members.

**Communication outcomes.** This category of variables represents the impact of communication behaviours on organisational members. Communication climate (CLIMATE; tested in H2a) is a variable in this group and was measured by using 16 items from the Dennis Communication Climate Inventory (Dennis, 1975; 1974). This instrument is designed to assess the communication climate by measuring subjects' perceptions of the degree of supportiveness, trust, confidence, openness, and sincerity present in the

organisation.

Another communication outcome variable, communication adequacy (ADEQUATE; tested in H2b), was measured by a series of 21 questions from Hawkins and Penley (1978). The items identify important job-related topics about which an individual would expect to receive information while at work. On two separate seven-point Likert-type scales, each respondent was asked to indicate how much information he presently received and how much information he needed to receive. By subtracting the amount of information indicated as being needed from the amount indicated as presently received, a measure of communication adequacy was obtained. A value of zero indicates communication adequacy, while a negative value indicates inadequacy, and a positive value indicates more than adequate communication or information.

Knowledge and understanding of profit sharing is another communication outcome variable that was measured. Understanding of the general underlying concepts of profit sharing (CONCEPT; tested in H2c) by profit sharing participants and nonparticipants, was measured by a 11 item, seven-point, Likert-type scale developed by Mohrman et al. (1987). This scale was designed to assess the degree to which subjects understand the role of suggestion making, co-operation, participation, and reduced costs within the context of profit sharing.

The final communication outcome variable is identification (IDENTIFY; tested in H2d). Identification is considered to be the ultimate purpose and outcome of effective communication (Burke, 1966). In this case, identification represents the extent to which the mission and values of the organisation are internalised by the organisation member and they help him to give a meaning to his life. Identification was measured using the five item, seven-point Likert-type Moral Commitment Scale developed by Penley and Gould (1988).

**Organisational outcomes.** This category of variables represents attitudes which would be relevant to organisational effectiveness and in which the organisation would be most interested. Attitude toward internal work motivation (INTERNAL; tested in H3a) was measured by a six-item scale (Hackman and Oldham, 1975) developed to measure the degree to which an employee is self-motivated to perform effectively. It refers to the extent to which an individual experiences positive feelings when doing well and negative feelings when performing poorly. Responses to these items were measured on a seven-point Likert-type scale.

Another organisational outcome variable measured was general job satisfaction (JOBSAT; tested in H3b), which is an overall measure of the degree to which an employee is satisfied and happy with a job. The Hackman and Oldham (1975) instrument contains five items on seven-point Likert-

type scale. Pay satisfaction (PAYSAT; tested in H3c) was measured by a separate three-item Pay Satisfaction scale from the Michigan Organisational Assessment Questionnaire (Seashore et al. 1982).

Intention to turnover (TURNOVER; tested in H3d) is a variable that was measured using a three-item index of employees' intention to leave their jobs. This scale is also part of the Michigan Organisation Assessment Questionnaire (Cammann et al., 1983) and responses are on a seven-point Likert-type scale.

In this study organisational commitment was conceptualised as both an attitudinal and behavioural variable. As an attitudinal variable, it was measured using Porter and Smith's (1970) Organisational Commitment Questionnaire (COMMIT; tested in H3e). The 15 items in this scale attempt to assess the general affective reaction individuals have to the organisation in terms of their belief in and acceptance of organisation's values and goals, willingness to exert considerable effort on behalf of the organisation, and desire to remain a member of the organisation.

Alienative commitment (ALIENATE; tested in H3f), also an attitudinal variable, was measured using a five item scale developed by Penley and Gould (1988). The purpose of this seven-point Likert-type scale is to assess the extent to which an employee perceives he is attached to the

organisation due to a lack of control on their part to do anything or be anywhere else.

Calculative commitment (CALC; tested in H3g), a behavioural variable, was measured using Penley and Gould's (1988) five item, seven-point Likert-type scale. The purpose of this scale is to measure the extent to which employees consciously base their contributions to the organisation (ability and effort) upon an exchange for inducements of material value (pay and benefits) from the organisation.

Cooperativeness (COOPERATE; tested in H3h) is a second organisational outcome variable included in this study. It was measured by a series of 12 items on seven-point Likert-type scales developed by Mohrman et al. (1987). This scale measures attitudes toward change implementation, both as an individual and a group member, and toward individual and team cooperation. At this point it is appropriate to note that all of the scales cited in this study from Mohrman et al. (1987) originated from the Michigan Organisation Assessment Questionnaire (Cammann, Fichman, Jenkins, & Klesh, 1983) and were first adapted into profit-sharing-oriented instruments by R.J. Bullock (Mohrman et al. 1987).

A final attitudinal organisational outcome variable included in the study is attitude toward profit sharing (ATTITUDE; tested in H3i). This was measured using a 15 item, seven-point, Likert-type scale developed by Mohrman

et al. (1987). It was developed to assess the perceived benefits and importance of profit sharing among profit sharing participants. In this study, profit sharing participants were asked these questions in a direct manner, but nonparticipants were given a brief description of the experimental profit sharing plan and asked to answer the items on the basis of how they would feel if they were to participate in profit sharing at some time in the future.

Organisational effectiveness variables included in the study are the weekly measures of plant performance used in the bonus formula. These are: (1) number of items manufactured, (2) rate of rejects, (3) down time, and (4) on time shipment. These will be descriptively addressed in research question one and are fully described in Appendix A.

## Data Collection

**Survey administration.** The administration of the survey occurred according to the following schedule:

June-Sept. 1987: Recruitment and selection of experimental group members; description of the treatment (profit sharing plan) occurred during this process.

Sept. 1987: Orientation of the experimental group; more detailed presentation of the treatment occurred during explanation sessions and distribution of profit sharing literature.

October 1987: Pretest administered to experimental group (in Saveh).

Nov. 1987: First bonus money is distributed to experimental group.

Nov. 1987: Pretest administered to control group (in Tehran).

Dec. 1987: Second bonus money is distributed to experimental group.

Jan-Mch. 1988: Three more bonuses distributed to experimental group.

April 1988: Post-tests administered to entire experimental and control groups.

The survey was administered by a team of five, consisting of four SIC employees, two from each plant, led by an outsider who is a close friend of the researcher and resides in Tehran. They operated under the authorisation of SIC President and received full support from the management.

Subjects met with the surveyors for one hour on company time before the beginning of their shift to complete the survey. The subjects who could not read and write were assisted by the surveyors to complete the survey. At the time of the survey administration the subjects were assured of the total confidentiality of their individual responses. The non-employee team member supervised the survey and particularly questioned those employees who would have not felt free and at ease talking to a co-worker, the answer to the survey questioned would have not been given openly and

accurately, and responses might have been affected if interviewed by a fellow employee.

A summary of the administration of the research design of the study is presented in Table 5. The Dollar signs represent bonus money payouts.

| | Oct.1987 | Nov. | Dec. | Jan.1988 | Feb. | Mar. | Apr. | |
|---|---|---|---|---|---|---|---|---|
| Profit Sharing Participants (Saveh) | Pretest | | $ | $ | $ | | $ | $ | Posttest |
| Profit Sharing Participants (Saveh) | | | $ | $ | $ | | $ | $ | Posttest |
| Non-Profit-Sharing (Tehran) | | | Pretest | | | | | | Posttest |
| Non-Profit-Sharing (Tehran) | | | | | | | | | Posttest |

Table 5: Research Design

**Archival data.** Weekly plant operation performance measures were provided by SIC for both the Saveh and Tehran plants.

## Statistical Procedure for Testing the Hypotheses

In the final section of this chapter the appropriate statistical procedures selected for testing the

hypotheses and research questions will be described.

Before testing the hypotheses, preliminary analysis was conducted on the data to assess the actual non-equivalency between the experimental and control groups. This included comparisons of the two pretest groups on the basis of demographic characteristics and survey responses. Additional preliminary procedures included assessment of the psychometric properties of the data in terms of the reliability of the measurement scales used in the study. Evidence of the validity of non-established scales was provided from the results of exploratory factor analysis.

The purpose of the data analysis was to determine the effect of the experimental treatment in contrast to a controlled condition, primarily through the comparison of the posttest scores of the two groups. However, the selection differences that occurred were likely to produce posttest differences between the groups even in the absence of a treatment effect. Therefore, to get a "reasonable" estimate of the treatment effect, the analysis had to properly recognise or control for the effects of the initial difference (Cook & Campbell, 1979:149).

MANCOVA (multivariate analysis of covariance) was selected as the statistical method to deal with the problem of separating the effect of the treatment from the effect of selection differences. The pretest responses were included as covariates to adjust for initial differences between the

experimental and control groups, and therefore increase the precision of the treatment effect estimate. The major advantage of the MANCOVA model over the simpler MANOVA (multivariate analysis of variance) is the reduction in error variance possible with MANCOVA because the pretest scores are directly included in the model. MANOVA would explain only that portion of variation in posttest scores that resulted from the treatment effect. All other variation, including that which could be explained by pretest differences, would be relegated to the error term against which the treatment effects would be compared. Consequently, small treatment effects would be more likely to go undetected in the MANOVA. In the MANCOVA pretest differences are not merely assigned to the error term, rather they function as predictors of expected posttest scores given the pretest scores. The relevant question in MANCOVA is whether the experimental group performed differently than the control group on the posttest by more than should be expected given the initial selection differences. To answer this question, MANCOVA uses a matching procedure whereby for any given pretest value it takes the predicted posttest values for the experimental and control groups and examines the differences between them. Thus, the estimate of the treatment effect in MANCOVA is the difference in the predicted posttest scores of the individuals in the two groups who have been matched on

pretest scores. A statistically significant difference suggests that the two groups would have significantly different posttest scores if the groups had started with the same pretest means (Cook & Campbell, 1979).

MANCOVA is also a preferred means of addressing the problem of separating selection differences from treatment effect because it does not require a reduction in sample size which occurs when MANOVA with matching is used. Individual responses are systematically dropped from the analysis when matches on pretest scores cannot be found and pairing up of experimental and control group members is not possible. If the differences in mean pretest scores are large, and if multiple pretest measures are used, the problem of sample size reduction will be more likely. Also, as a result of imperfect matching, which often occurs, less of an adjustment for pre-existing differences is obtained with matching than with MANCOVA, and so more underadjustment tends to result (Cook & Campbell, 1979:179). Another advantage of MANCOVA is that using the pretest scores as covariates, and estimating the effect of each covariate on each dependent variable, provides a test for the presence of an interaction of the treatment with the pretest. This test is not provided by simple MANOVA, MANOVA with matching, or another alternative analysis model: MANOVA with gain scores.

MANOVA with gain scores examines the difference from the pretest to the posttest. Gain scores (posttest

minus pretest) are used as the dependent variables in the MANOVA rather than just the posttest scores alone. Mean pretest differences are used as a standard against which to judge how large the mean posttest differences should be in the absence of a treatment effect. Except in the rare cases where cause for change in differences, other than the treatment, are not present or they can be exactly specified numerically, gain score analysis must be used with caution (Cook & Campbell, 1979). In this study significant differences between the experimental and control groups on pretest scores were possible, and causes for changes in differences other than treatment effect definitely existed due to the field setting and were not numerically specified. Therefore, to best adjust a MANOVA model for these conditions, MANCOVA was selected as the most appropriate statistical method for hypotheses testing.

MANCOVA was conducted separately on the dependent variables included in each of the three groups of hypotheses (communication behaviours, communication outcomes, and organisational outcome variables). First multivariate tests were conducted using all the dependent variables included in the hypothesis group, to test the null hypotheses of no differences in the means of the control and experimental groups.

The follow-up test used was an ANOVA on each of the dependent variables named in hypotheses 1a to 3i. Each

univariate F-ratio that reached the .05 significance level was considered statistically significant and available as a source of explanation for the differences in mean responses of profit sharing participants and non-participants. This procedure is considered appropriate if, as is the case here, the purpose of the analysis is to control the Type I error rate for a set of univariate ANOVAs.

## Statistical Procedure for Testing the Research Questions

Research question one was addressed through the analysis of descriptive statistics. Research question two was addressed through the same MANCOVA procedure described for hypotheses testing. In this case, the effects of participation in the research study on profit sharing participation were estimated by making two comparisons: (1) comparing posttest responses of posttest only profit sharing participants to posttest responses of posttest only non-profit-sharing participants, and (2) comparing posttest responses of posttest only non-profit-sharing participants to posttest responses of pre and posttest non-profit-sharing participants. If these comparisons were in agreement, the strength of the effects of participating in the profit sharing study on profit sharing participation were greatly increased (Campbell & Stanley, 1966).

## Summary

The purpose of this chapter was to fully describe

the research method of this dissertation. In general, the hypotheses tested in this study pertain to whether the independent variable, a profit sharing plan implemented at Shahvand Industrial Company, had any impact upon a set of sixteen dependent variables which were divided into three groups: (1) communication behaviours, (2) communication outcomes, and (3) organisational outcomes. Issues considered in the research questions were whether profit sharing participation had any impact on the financial returns of the profit sharing unit, and whether participating in the research study would have an interaction effect on subject's experiences with profit sharing.

A quasi-experimental nonequivalent control group design with pre and posttests was the research design used to test the effects of profit sharing participation on permanent part-time operative SIC employees. To test for significant differences in mean responses between profit sharing participants and non-participants, MANCOVA was selected as the most appropriate method of statistical analysis. It was expected that results of these tests would indicate that use of profit sharing has significant and favourable impacts upon communication behaviours, communication outcomes, and organisational outcomes. It is also expected that these tests would show employees' participation in the research study process would have weak interaction effects on profit sharing participation.

Data analysis results will be fully reported in the following chapter.

# Chapter 6

# RESULTS

Chapter Six contains the results of statistical analyses conducted on the data collected in this study. In particular, the first section focuses on the assessment of non-equivalency between the experimental and control groups. The second section addresses the psychometric issues of scale reliability and validity. The results of the hypotheses testing and examination of the research questions are reported in the last section of the chapter. All analyses were conducted using CRUNCH*, a statistical computer package for the social and management sciences.

The sample from which the data were collected was divided into several subgroups according to experimental or control group membership and participation in one or both parts of the study. Table 6 summarises the exact sizes of the various subgroups within the sample. As can be seen, the total sample consisted of 413 members (148 in the experimental group and 265 in the control group). Complete data for both pretest and posttest were available for 89 experimental group members and 136 control group members. Additionally, 15 experimental group and 10 control group

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*CRUNCH Software Corporation, 7677 Oakport St., Oakland, California, 94621, U.S.A.

members completed pretest questionnaires but did not complete posttest questionnaires. These individuals were dropped from the sample for the statistical analysis presented in this chapter.

## Group Non-equivalency Assessment

The extent of initial differences between the experimental and control groups, other than the presence of profit sharing, limited the interpretability of the results of the study. Statistical tests revealed the specific nature and degree of the pretest differences between the two groups in demographic characteristics and study variables.

**Table 6**

Sample Subgroup Sizes

| | Pre, and Posttest | Posttest only | Total |
|---|---|---|---|
| Experimental Group | 89 | 59 | 148 |
| Control Group | 136 | 129 | 265 |
| Total | 225 | 188 | 413 |

**Demographic Variables.** At the time of the pretest, the results of two-tailed t-test, presented in Table 7, indicated that there were statistically significant demographic differences between the experimental (Saveh) and control (Tehran) groups. All tests of statistical significance were conducted at the $p < 0.05$ level of statistical significance.

Experimental group members tended to be older than control group members by approximately 3.5 years. Also, experimental group members had slightly less formal education than control group members (0.5 year). The most significant difference between the two groups was that on average the experimental group had approximately 8.5 weeks less tenure with SIC than the control group ( $p<0.001$ ). With respect to previous work experience, the experimental group members had held more jobs previously, and had more years of both full-time and part-time work experience than members of the control group.

In order to further explore the differences between the two groups on the demographic variables, and to determine their relative importance, a multivariate analysis of variance (MANOVA) was carried out. The MANOVA model was calculated for five of the six demographic variables (education was not included due to its lesser significance ($p = 0.032$) in the t-test analysis. The MANOVA analysis allows the group differences on the most important

demographic variables to be assessed simultaneously in a multivariate frame work.

Results of the MANOVA model are shown in the right hand column of Table 7. As can be seen, controlling for the variables simultaneously showed a more refined pattern than the simple t-test analysis. Specifically, the two most significant group differences were found on full-time job experience ($F = 10.25$, $p < 0.001$) and length of SIC employment ($F = 20.54$, $p < o.001$). Age ($F = 8.31$, $p < 0.01$) and number of previous jobs ($F = 9.28$, $p < 0.01$) were also significant, although somewhat less so. Part-time job experience was no longer statistically significant when all other demographic variables were controlled for in MANOVA framework.

Comparison of the two groups on the nominal variables of sex and student status were done, with statistical significance assessed using Chi-Square statistic; results are shown in Table 8. These tests indicated that there was not a significant difference between the groups in terms of the ratio of males to females in each group. Experimental group members were more likely to be nonstudents than were control group members; this difference was significant as tested by the Chi-Square statistic. While 20.4 per cent of the control group were part-time students, this was true of only 10.1 per cent of the experimental group.

**Table 7**

*t*-tests and MANOVA for Demographic Variables Assessing the Differences Between Experimental and Control Pretest Groups

| Variables | Exp. Group (Mean) N=148 | Cont. Group (Mean) N=265 | *t* | *p* | MANOVA *F* |
|---|---|---|---|---|---|
| Age (years) | 28.59 | 25.04 | 7.22 | < 0.001 | 8.31* |
| Education (yrs.) | 2.2 | 2.74 | -2.15 | 0.032 | -- |
| Number of Previous Jobs | 4.95 | 3.89 | 6.77 | < 0.001 | 9.28* |
| Full-Time Job Experience (yrs.) | 7.88 | 4.78 | 7.22 | < 0.001 | 10.25** |
| Part-time Job Experience (yrs.) | 3.46 | 2.42 | 5.15 | < 0.001 | 3.52 |
| Length of SIC Employment (wks.) | 6.11 | 14.68 | -16.98 | < 0.001 | 20.54** |

* Level of significance for *t*-tests based upon two-tailed probabilities.

**$p < 0.01$

***$p < 0.001$

**Table 8**

Chi-Square Tests of Nominally Scaled Demographic Variables Assessing Differences Between Experimental and Control Groups

| Variables | Experimental Group N | % | Control Group N | % | Chi-Square | d.f. | p |
|---|---|---|---|---|---|---|---|
| Sex: | | | | | 0.297 | 1 | 0.586 |
| Male | 133 | 89.9% | 232 | 87.6% | | | |
| Female | 15 | 10.1% | 33 | 12.4% | | | |
| Student Status: | | | | | 7.320 | 2 | 0.026 |
| Nonstudent | 125 | 84.5% | 196 | 74.0% | | | |
| Part-time | 15 | 10.1% | 54 | 20.4% | | | |
| Full-time | 8 | 5.4% | 15 | 5.7% | | | |

**Study Variables.** Initially, it was important to compare the two study groups on the pretest measures to assess group comparability. Group differences were assessed in a multivariate context using MANOVA; findings of this preliminary analysis are shown in Table 9. Multivariate tests of significance in differences between group means indicated that overall the two groups differed in their responses to the set of dependent variables. Results showed that experimental group members scored higher on Team Ideas and on Attitudes Towards Profit Sharing than control group members. Experimental group members also scored somewhat lower on Information Adequacy and Pay Satisfaction. Thus, the two groups differed on only four pretest variables; there were no significant differences on the other 14 pretest measures.

In summary, the group comparisons revealed several significant differences in demographic and background variables and on four of the pretest measures of communication. While all of them were statistically significant, not all were threats to the interpretability of the results of the study. The most important demographic differences between the groups pertained to employment tenure. This difference was large enough to be obvious, and the variable would appear to be important with respect to the research design and influence on employment attitudes.

The approximately nine week difference in

**Table 9**

Pretest means and Standard Deviations of Study Variables*

| Variables** | Experimental Group (N=89) Means | s.d. | Control Group (N=136) Means | s.d. |
|---|---|---|---|---|
| Communication Behaviours: | | | | |
| Supervisory Com. | 5.15 | 1.52 | 5.00 | 1.38 |
| Peer Communication | 4.33 | 1.34 | 4.10 | 1.13 |
| Organisational Com. | 5.52 | 1.55 | 5.59 | 1.44 |
| Individual Ideas | 5.15 | 1.51 | 5.12 | 1.39 |
| Team Ideas*** | 4.89 | 1.50 | 4.32 | 1.19 |
| Communication Outcomes: | | | | |
| Communication Climate | 5.30 | 1.54 | 5.08 | 1.39 |
| Information Adequacy*** | 1.26 | 0.24 | 1.55 | 0.35 |
| Profit Sharing Concepts | 5.40 | 1.55 | 5.42 | 1.42 |
| Identification | 5.63 | 1.52 | 5.89 | 1.37 |
| Organisational Outcomes: | | | | |
| Internal Motivation | 5.32 | 1.54 | 5.35 | 1.41 |
| Job Satisfaction | 5.06 | 1.51 | 5.16 | 1.39 |
| Pay Satisfaction*** | 4.37 | 1.35 | 5.07 | 1.39 |
| Intention to Turnover**** | 2.35 | 0.70 | 2.51 | 0.67 |
| Organisational Commitment | 5.44 | 1.56 | 5.63 | 1.43 |
| Alienative Commitment**** | 1.82 | 0.49 | 1.79 | 0.44 |
| Calculative Commitment | 6.58 | 1.06 | 6.70 | 0.86 |
| Cooperativeness | 5.34 | 1.54 | 5.45 | 1.42 |
| Attitude Towards P/S*** | 5.36 | 4.29 | 4.29 | 1.18 |

* The results of overall MANOVA between the two groups were significant at $p < 0.001$.

** Unless otherwise indicated, all variables were measured on Likert scales where 1 is equal to least favorable and 7 is equal to most favorable responses. The values reported are reduced scale means computed by dividing the summed responses for the entire scale by the number of items contained in the scale.

*** $p < 0.001$

**** Due to the negative connotation of these variables, a low value (close to 1) should be interpreted as favorable, and a high value (close to 7) as unfavorable.

employment tenure between experimental and control group members may threaten the validity of study findings. Employee perceptions may change very quickly in the early stages of employment with a firm and are generally quite positive upon initial entry into an organisation due to the "honeymoon" effects. This may account for the significantly more favorable pretest responses of the experimental group, whose mean tenure was significantly shorter than control group's job tenure.

The differences that occurred between the pretest groups in their responses to the study variables were important because they indicate the level of initial differences between the experimental and control environments. In general, the pretest differences between the two groups were minimal (i.e., four of 18 scales). For two of the differences, the experimental group scored higher (i.e., Team Ideas and Attitudes Towards Profit Sharing). However, the control group scored higher on two dimensions as well (i.e., Information Adequacy and Pay Satisfaction). This pattern of group responses suggests that pretest group differences were minimal and should not threaten the design validity. Nevertheless, the possibility of a pretest effect was controlled in hypothesis tests by using the pretest scores and control variables in a MANOVA framework.

**Further Nonequivalency Considerations.** Nonequivalency of groups was also of interest in the case of the

control groups used in this design to test for the main effects of participating in the research study. These control groups consisted of 59 employees in Saveh and 129 employees in Tehran who took the posttest only, instead of taking both the pretest and the posttest. The degree of nonequivalency between the groups of employees at each plant who took both the pretest and the posttest and the groups of employees at each plant who took the posttest only will be relevant to the interpretation of the hypotheses testing results. There were no significant difference between these groups on the same demographic and study variables examined for the main experimental and control groups.

## Psychometric Properties of Study Variables

**Reliability assessment.** A necessary (but not sufficient) condition for measurement validity is that the measures used are reliable (Peter, 1979). All of the measurement scales used in this study have been used previously, and coefficient alpha (Cronbach, 1951) estimates of their reliability have been reported. Reliability for the scales in the current sample was assessed by calculating the Cronbach's alpha coefficient for each scale; this was done separately for the experimental group (see Table 10) and the control group (see Table 11). In general, a scale can be accepted as statistically reliable when the coefficient alpha is observed to be equal to or greater than 0.70 (Nunally, 1978).

**Table 10**

Scale Reliability Estimates
Experimental Group - Saveh

| Scale | Number of Items | Pretest Coeff. Alpha (N=89) | Posttest Coeff. Alpha (N=148) |
|---|---|---|---|
| Supervisory Communication | 18 | .938 | .929 |
| Peer Communication | 18 | .942 | .945 |
| Organisational Communication | 11 | .908 | .913 |
| Individual Ideas | 6 | .719 | .720 |
| Team Ideas | 2 | .857 | .863 |
| Information Adequacy | 21 | .958 | .946 |
| Information Received | 21 | .961 | .963 |
| Communication Climate | 16 | .913 | .926 |
| Identification | 5 | .824 | .817 |
| Cooperation | 12 | .823 | .839 |
| Profit Sharing Attitude | 14 | .923 | .941 |
| Profit Sharing Concepts | 11 | .875 | .894 |
| Intention to Turnover | 3 | .858 | .850 |
| Organisational Commitment | 15 | .895 | .858 |
| Calculative Commitment | 5 | .803 | .728 |
| Alienative Commitment | 5 | .909 | .828 |
| Internal Motivation | 5 | .739 | .639 |
| Pay Satisfaction | 3 | .899 | .863 |
| Job Satisfaction | 5 | .711 | .688 |

**Table 11**

Scale Reliability Estimates
Control Group - Tehran

| Scale | Number of Items | Pretest Coeff. Alpha (N=136) | Posttest Coeff. Alpha (N=265) |
|---|---|---|---|
| Supervisory Communication | 18 | .953 | .921 |
| Peer Communication | 18 | .909 | .937 |
| Organisational Communication | 11 | .914 | .898 |
| Individual Ideas | 6 | .703 | .720 |
| Team Ideas | 2 | .902 | .877 |
| Information Adequacy | 21 | .934 | .939 |
| Information Received | 21 | .947 | .943 |
| Communication Climate | 16 | .919 | .929 |
| Identification | 5 | .856 | .842 |
| Cooperation | 12 | .797 | .821 |
| Profit Sharing Attitudes | 14 | .925 | .949 |
| Profit Sharing Concepts | 11 | .906 | .857 |
| Intention to Turnover | 3 | .824 | .788 |
| Organisational Commitment | 15 | .829 | .853 |
| Calculative Commitment | 5 | .767 | .782 |
| Alienative Commitment | 5 | .783 | .877 |
| Internal Motivation | 5 | .718 | .659 |
| Pay Satisfaction | 3 | .877 | .832 |
| Job Satisfaction | 5 | .686 | .703 |

Table 10, which shows the reliability characteristics within the experimental group, shows that pretest alpha coefficients range from a low of 0.711 for Job Satisfaction to a high of 0.961 for Information Received. At posttest, alpha coefficients ranged from 0.639 for Internal Motivation to 0.963 for Information Received. Thus, 35 of 36 possible alpha coefficients exceeded the 0.70 criterion.

Table 11 shows a similar set of reliability coefficients for the control group. Here, alpha coefficients are also acceptable. At pretest, 17 of 18 scales had alphas exceeding 0.70; at posttest, all 18 were above that level. Thus, the internal consistency profile for the control group is also acceptable from a psychometric perspective (Nunally, 1978).

In summary, then, the reliability statistic shown in Tables 10 and 11 provide support for the use of the five communication behaviours scales, the four communication outcomes scales, and the nine organisational outcomes scales.

**Validity Assessment**

Evidence of construct validity, i.e., the extent to which a scale measures the single construct it is intended to measure, was provided by conducting an exploratory factor analysis.

**Introduction to factor analysis.** Factor analysis is a statistical technique that is used to determine the

extent to which a group of measures share common variance. The single most distinctive characteristic of factor analysis is its data-reduction capability (Lawler, 1995:576). Factor analysis is based on the fundamental assumption that some underlying factors, which are smaller in number than the number of observed variables, are responsible for the covariation among the observed variables (Kim, 1975:12). Given an array of correlation coefficients for a set of variables, factor-analytic techniques enable us to see whether some underlying pattern of relationships exist such that the data may be rearranged or reduced to a smaller set of "factors" that may be taken as "source variables" accounting for the observed interrelations in the data. The application of factor analysis may be classified in three categories: (1) exploratory uses, (2) confirmatory uses, and, (3) uses as a measuring device. The exploratory uses of factor analysis being the most common (Kim, 1975:469).

The first step in factor analysis involves the selection and calculation of appropriate measure of association for a set of "relevant variables" and preparing a covariance matrix. The second step is to explore the data-reduction possibilities by constructing a set of new variables on the basis of the interrelations exhibited in the data. The questionnaires usually include several dozens of questions. What is really of interest, however, are

employee views regarding underlying dimensions of a particular scale. Typically, there are only a few such dimensions, which are psychological states that cannot be directly measured. Such dimensions are called "factors" and factor analysis is used to assess them indirectly (Kim, 1975:470).

The basic factor analysis model assumes that employee responses to each of a particular set of scales in the questionnaire can be condensed into one or more underlying factors. The most commonly used procedure of determining the number of initial factors to be extracted is a rule-of-thumb; the rule known either as the Kaiser or eigenvalue criterion (Kim, 1998:49). These factors are further assumed to be related to the score of each item on the questionnaire in a linear manner. Then, a respondent's answer to a particular item could be decomposed into those basic factors according to the following equations where:

score(i) = subject's score on questionnaire item i;

a(1i) = coefficient relating factor 1 to score(i);

factor1 = value of the first factor for the subject;

a(2i) = coefficient relating factor 2 to score(i);

factor2 = value of the second factor for the subject.

The underlying factors can be thought of as the subject's true feeling with respect to his or her job. For each item, the coefficients (a1i and a2i) will probably be different. These coefficients are usually referred to as "factor

loadings". While the factors cannot be measured directly, it is possible to estimate factor loadings indirectly (Lawler, 1995:575).

Estimates of factor loadings are derived from the matrix containing the intercorrelations of all of the observed scores for a large number of subjects. Each subject in the sample answers all of the questionnaire items and the matrix contains all possible correlations between pairs of these items. Factor analysis methods derive factor loadings in such a way that groups of variables that are highly interrelated tend to load on the same factor. Loadings are in the range of -1.0 to 1.0 and the higher the absolute value of a loading , the more closely linked an observed item is to a factor (Lawler, 1995:576).

The final step in factor analysis is to choose the best rotational method to arrive at the terminal solution that satisfies the theoretical and practical needs of the research problem. The basic impetus for employing any rotational method is somehow to achieve simpler and theoretically more meaningful factor patterns (Kim, 1975:473). The unrotated factors extracted through various factoring methods may or may not give us a meaningful patterning of variables. In the unrotated solution, every variable is accounted for by two significant common factors, while in the rotated solution each variable is accounted for by a single significant common factor. Therefore, the

rotated factor loadings are conceptually simpler than the unrotated ones. Another important reason for rotation is that the loadings in the unrotated solution depend heavily on the relative number of variables; if we delete one variable, which presumably stands for a certain theoretical dimension, the relative loadings on the unrotated factors may change drastically. The rotated factors are more stable in this respect than the unrotated ones (Kim, 1975:483).

The most widely used rotation method is Varimax, This method which is an orthogonal (uncorrelated) rotation, centers on simplifying the columns of a factor matrix and defines a simple factor as one with only 1s and 0s in the column. Varimax simplifies the factor structure by maximising the variance of the squared loadings in each column; hence the name Varimax.

**Exploratory factor analysis.** Evidence of convergence validity was provided by the results of exploratory factor analysis on the scales pertaining directly to profit sharing behaviours, concepts, and attitudes used by Mohrman et al. (1987). For example as shown in appendix B, Profit Sharing Behaviour indicators are derived from Section C of the Survey Questionnaire, Profit Sharing Concepts indicators are derived form Section F of the Survey Questionnaire, and Profit Sharing Attitudes indicators are derived form Section K of the Survey Questionnaire.

Multiple items used to operationalise each construct were factor analysed to determine whether all items merited inclusion in the measure. The criterion for excluding an item was if it had a small loading on the first factor extracted. On the other hand, if all items loaded heavily on the first factor extracted it was concluded that the items were all dimensions of the same underlying factor (John and Reve, 1978).

The results of exploratory factor analysis for the Profit Sharing Attitude scale, presented in Table 12, clearly identified all but one of the scale items with the proposed underlying construct. Factor loading ranged from .383 to .934. Only one item had a loading less than .582. None of the items had higher loadings on other factors. The eigenvalue of the first factor was 8.16 and it accounted for 58.3 per cent of the variability in item scores.

The results of exploratory factor analysis for the Profit Sharing Concept scale, presented in Table 13, identified all but one of the scale items with two underlying constructs. Five of the items loaded on each of two factors. Factor loadings for the first factor ranged from .677 to .849. Factor loadings for the second factor ranged from .631 to .812. Four items that loaded heavily on factor two also loaded on factor one with loadings not greater than .493. One item did not load heavily on either factors. The eigenvalues were 5.75 for factor one and 1.08

for factor two, and the factors jointly accounted for 62.1 per cent of the variability in items scores. Factor one was easily identified as the "equality" dimension of general profit sharing concepts. Factor two was labeled as the "contingency" dimension of profit sharing concepts. These findings were not as expected.

**Table 12**

Exploratory Factor Analysis of Profit Sharing Attitude Scale with Varimax Rotation

| Scale Items | Factor 1 |
|---|---|
| PSF3* | .865 |
| PSF4 | .778 |
| PSF5 | .789 |
| PSF7 | .886 |
| PSF8 | .805 |
| PSF9 | .812 |
| PSF10 | .931 |
| PSF11 | .383 |
| PSF12 | .934 |
| PSF13 | .645 |
| PSF15 | .726 |
| PSF16 | .747 |
| EXP1** | .582 |
| EXP2 | .608 |
| Eigenvalue | 8.16 |
| Variance Accounted for | 58.3% |

* PSF is an abbreviation for "profit sharing feeling". These items comprise the Attitude Towards Profit Sharing scale developed by Mohrman et al. (1987). Items 1, 2, 6, and 14 were not included in the control group scale because they were too specific to the profit sharing plan used by the experimental group, therefore, those items were dropped from the analysis.

** EXP is an abbreviation for "expectancies". These items are the items used by Goodman & Graham-Moore (1976) to measure system and self expectancies about profit sharing plan.

**Table 13**

Exploratory Factor Analysis of Profit Sharing Concepts Scale with Varimax Rotation

| Scale Items | Factor 1 | Factor 2 |
|---|---|---|
| CON1* | .823 | |
| CON2 | .849 | |
| CON3 | .710 | |
| CON4 | .572 | |
| CON5 | .424 | .759 |
| CON6 | .677 | |
| CON7 | | .304 |
| CON8 | .493 | .631 |
| CON9 | .339 | .714 |
| CON10 | .404 | .691 |
| CON11 | | .812 |
| Eigenvalues | 5.75 | 1.08 |
| Variance accounted for | 52.3% | 9.8% |

* CON is an abbreviation for "profit sharing concept".

Previous research had indicated that only one factor should be extracted and the hypothesis testing in this research did not divide profit sharing concepts into two separate constructs.

The results of the exploratory factor analysis for the Individual and Team Idea Communication scale, presented in Table 14, identified all but one of the scale items with three underlying constructs. Factors one and two were the proposed factors - one for Team Idea Communication and one for Individual Idea Communication. Three items loaded heavily on factor one, with loadings that ranged from .854 to .908. Two items expected to load on this factor loaded heavily on factor three with loadings of .883 and .886. No other items loaded on factor three. Examination of the two items identified with this factor revealed that these were the only two items in the scale that were negatively worded and required reverse responses. One item expected to load on factor one did not load heavily on any factor. Both the team idea items loaded heavily on factor two with loadings of .941 and .886. Neither of these items loaded on the other two factors. Eigenvalues were 2.86, 1.74, and 1.23 for factors one, two, and three respectively. Jointly, the three factors accounted for 72.9 per cent of the variance in item scores.

The results of exploratory factor analysis for the Cooperative scale, presented in Table 15, identified all

**Table 14**

Exploratory Factor Analysis of Individual Idea and Team Idea Communication Scale with Varimax Rotation

| Scale Items | Factor 1 | Factor 2 | Factor 3 |
|---|---|---|---|
| INDIDEA1* | .854 | .394 | |
| INDIDEA2 | | | .883 |
| INDIDEA3 | .908 | | |
| INDIDEA4 | .854 | | |
| INDIDEA5 | | | .886 |
| INDIDEA6 | .415 | .447 | |
| TEAMIDEA1** | | .886 | |
| TEAMIDEA2 | | .941 | |
| Eigenvalues | 2.86 | 1.74 | 1.23 |
| Variance Accounted for | 35.8% | 21.8% | 15.3% |

* INDIDEA is an abbreviation for "Individual Idea Communication Behaviour".

** TEAMIDEA is an abbreviation for "Team Idea Communication Behaviour".

**Table 15**

Exploratory Factor Analysis of Cooperativeness Scale with Varimax Rotation

| Items | Factor 1 | Factor 2 | Factor 3 |
|---|---|---|---|
| INDCHNG1* | | .799 | |
| INDCHG2 | | .888 | |
| INDCHG3 | | .724 | |
| INDCOOP1* | .499 | .366 | |
| INDCOOP2 | | .385 | .678 |
| INDCOOP3 | | | .593 |
| INDCOOP4 | | | .788 |
| INDCOOP5 | | | .849 |
| TEAMCHNG1*** | .585 | .557 | |
| TEAMCHNG2 | .691 | .398 | |
| TEAMCOOP1**** | .870 | | |
| TEAMCOOP2 | .907 | | |
| Eigenvalues | 4.55 | 2.02 | 1.43 |
| Variance Accounted for | 37.9% | 16.8% | 11.9% |

* INDCHNG is an abbreviation for "Individual Change Behaviour".

** INDCOOP is an abbreviation for Individual Cooperative Behaviour".

*** TEAMCHNG is an abbreviation for "Team Change Behaviour".

**** TEAMCOOP is an abbreviation for "Team Cooperative Behaviour".

but one of the scale items with three underlying constructs. Mohrman et al. (1987) identified four factors within this scale - one each for Individual and Team Change Behaviours, and one each for Individual and Team Cooperation Behaviours. All four of the items pertaining to group behaviour loaded heavily on factor one. Loadings ranged from .585 to .907. The Team Change item with the loading of .585 loaded almost equally (.557) on factor two. All three of the individual change items loaded on factor two, and the loadings ranged from .724 to .888. Four of the five individual cooperative behaviour items loaded heavily on factor three. The values of the loadings ranged from .593 to .849. Only one of the four items loaded on another factor. One of the individual cooperative behaviour items did not load heavily (>.50) on any factor. The eigenvalues were 4.55, 2.02, and 1.43 for factors one, two, and three respectively. Jointly, the three factors accounted for 66.6 per cent of the variance in items scores.

Evidence of discriminant validity was obtained by conducting an exploratory factor analysis of all the profit sharing scale items (John & Reve, 1978). In almost all cases (38 out of 45 items), items for separate constructs did not load on the same factors, therefore, it was concluded that the constructs measured by the profit sharing scales are distinct and separate from each other. Eigenvalues for the extracted factors ranged from 11.25 to 1.02 and jointly the

factors accounted for 72.5 per cent of the variance in item scores. All items, except one, had communalities of .5 or greater, with most reaching .70 to .88.

**Summary.** The results of exploratory factor analysis on the profit sharing scales, provides preliminary evidence of the validity of these scales. The evidence is strengthened because it is consistent with the findings of previous profit sharing studies that utilised these scales (Mohrman et al., 1987). All of these scales were retained in the study for further data analysis.

## Hypotheses Testing

**Testing of hypotheses 1a to 1e.** Hypotheses 1a to 1e suggested that profit sharing participation would affect communication behaviours. It was expected that profit sharing participants would perceive higher levels of Supervisory Communication, Peer Communication, Organisational Communication, and Individual and Team Idea Communication that would nonparticipants. The results of MANCOVA presented in Table 16 partially supported this group of hypotheses. When all the communication behaviour variables were analysed as a group, the multivariate test results were significant at $p < 0.05$. This indicated that the effect of profit sharing participation on overall communication behaviours was significant. Overall, posttest responses of the experimental group were significantly higher than control group members' responses. Results of

**Table 16**

Results of MANCOVA for Posttest Differences Between Experimental and Control Groups* Pertaining to Hypotheses 1a to 1e.

| Dependent Variables | Experimental Group (N=89) m | s.d. | Control Group (N=136) m | s.d. | Univariate F | p** |
|---|---|---|---|---|---|---|
| Supervisory Communication | 5.16 | 1.58 | 5.00 | 1.47 | 0.580 | 0.447 |
| Peer Communication | 4.66 | 1.42 | 4.29 | 1.26 | 3.967 | 0.048 |
| Organisational Communication | 5.27 | 1.58 | 5.43 | 1.60 | 0.514 | 0.474 |
| Individual Idea Communication | 5.16 | 1.58 | 5.22 | 1.54 | 0.088 | 0.768 |
| Team Idea Communication | 5.37 | 1.58 | 4.66 | 1.37 | 12.842 | .0004 |

* Multivariate test of the main effect of group membership (the treatment) was significant at $p<0.05$.

** Multivariate test on the effects of the pretest covariates was significant at $p<0.001$.

MANCOVA also indicated that the covariates were significant predictors of posttest responses. The multivariate tests for the covariates produced significant results at $p < 0.001$. Results of univariate tests of significance between the two groups revealed two significant findings. Specifically, the experimental group scored significantly higher on both Peer Communication ($p = 0.048$) and on Team Idea Communications ($p = 0.0004$).

Thus, taken as a whole, these findings provide partial statistical support for the first general hypothesis. However, the specific univariate tests indicate that only two specific hypotheses were supported. First, the finding that the experimental group scored higher on Peer Communication supports Hypothesis 1b, second, the finding that the experimental group scored higher on Team Idea Communications supports Hypothesis 1e.

**Testing of hypotheses 2a to 2d.** Hypotheses 2a to 2d suggested that profit sharing participation would effect communication outcomes. It was expected that profit sharing participants would report more favorable perceptions of Communication Climate, higher levels of Information Adequacy, understanding of Profit Sharing Concepts, and Identification with the organisation than would nonparticipants. The results of MANCOVA presented in Table 17 provided no support for this group of hypotheses. When all the communication outcome variables were analysed as a

**Table 17**

Results of MANCOVA for Posttest Differences Between Experimental and Control Groups* Pertaining to Hypotheses 2a to 2d

| Dependent Variables | Experimental Group (N=89) m | s.d. | Control Group (N=136) m | s.d. | Univariate F | p** |
|---|---|---|---|---|---|---|
| Communication Climate | 4.96 | 1.52 | 4.85 | 1.43 | 0.319 | 0.573 |
| Information Adequacy | 1.62 | 0.33 | 1.60 | 0.47 | 0.208 | 0.649 |
| Profit Sharing Concepts | 5.32 | 1.58 | 5.18 | 1.53 | 0.42 | 0.517 |
| Identification | 5.62 | 1.59 | 6.02 | 1.77 | 3.00 | 0.085 |

* Multivariate test of the effects of group membership (the treatment) was not significant at $p<0.05$.

** Multivariate test of the effects of the covariates was significant at $p<0.001$.

group, the multivariate tests of significance were not significant at $p < 0.05$. This indicated that a main effect of profit sharing participation on communication outcomes was not present. Results of MANCOVA indicated that the covariates were significant predictors of posttest responses. The multivariate tests of significance of the covariates were significant at $p<0.001$. Since the overall multivariate tests were not significant, it is not surprising that none of the univariate F-tests were significant.

As a result of multivariate statistical tests, the general hypothesis that Profit Sharing Participation affects communication outcomes was not supported. Hence, the results of multivariate tests did not support the specific hypotheses 2a to 2d pertaining to favorable change in Communication Climate, Information Adequacy, Understanding of Profit Sharing Concepts, and Identification with the Organisation.

**Testing of hypotheses 3a to 3i.** Hypotheses 3a to 3i suggested that profit sharing participation would affect organisational outcomes. It was expected that profit sharing participants would report more favorable attitudes toward pay, their job, the organisation, and profit sharing than would nonparticipants. It was also expected that profit sharing participants would report higher levels of Internal Motivation and Cooperative Behaviour, and lower levels of Intention to Turnover than would nonparticipants. The

**Table 18**

Results of MANCOVA for Posttest Differences Between Experimental and Control Groups* Pertaining to Hypotheses 3a to 3i

| Dependent Variables | Experimental Group (N=89) m | s.d. | Control Group (N=136) m | s.d. | Univariate F | p** |
|---|---|---|---|---|---|---|
| Internal Motivation | 5.24 | 1.57 | 5.22 | 1.54 | 0.012 | 0.912 |
| Job Satisfaction | 4.79 | 1.46 | 4.76 | 1.40 | 0.022 | 0.881 |
| Pay Satisfaction | 4.53 | 1.33 | 4.74 | 1.39 | 2.24 | 0.135 |
| Intention to Turnover | 2.57 | 0.74 | 2.60 | 0.76 | 0.057 | 0.811 |
| Organisational Commitment | 5.35 | 1.58 | 5.58 | 1.64 | 1.045 | 0.308 |
| Alienative Commitment | 2.10 | 0.57 | 2.01 | 0.59 | 1.421 | 0.234 |
| Calculative Commitment | 4.57 | 1.39 | 4.76 | 1.40 | 1.016 | 0.314 |
| Cooperative Behaviour | 5.37 | 1.58 | 5.28 | 1.56 | 0.147 | 0.702 |
| Attitude Towards Profit Sharing | 4.62 | 1.37 | 4.48 | 1.33 | 0.975 | 0.324 |

* Multivariate test of the effect of group membership (the treatment) was not significant at $p<0.05$.

** Multivariate test of the effects of the covariates was significant at $p<0.001$.

results of MANCOVA presented in Table 18 provided no support for this group of hypotheses. When all the organisational outcome variables were analysed as a group, the multivariate tests of significance were not significant at $p<0.05$. Further, as a result of multivariate tests, H3a to H3i pertaining to favorable changes in levels of Internal Work Motivation, Job Satisfaction, Pay Satisfaction, Intention to Quit, Organisational Commitment, Alienative Commitment, Cooperative Behaviour, and Attitude Towards Profit Sharing were not supported. This indicated that a main effect of profit sharing participation on organisational outcomes was not present.

**Results of testing research question 1.** Research question one suggested that profit sharing would provide measurable financial returns to the profit sharing unit. This issue was addressed descriptively, as presented in Table 19. The descriptive approach was necessary given that comparative financial operating measures were not available for the control group; statistical analysis was not possible. The major financial result of profit sharing participation was that the operating unit that used the plan was able to generate a total of $44,945 in savings which was partially retained by SIC ($4,494), and partially distributed to individual employees in six bonuses approximately $258 per employee. If it was assumed that the average

employee worked 21 hours per week at an hourly rate of $2.50, and that there is 4.3 weeks in a month, the average monthly bonus of $43 represented a 21 percent increase in earning per employee.

Monthly earning per employee:

21 hr/week x $2.5/hr x 4.3 week/month = $225.75

Percentage of increase:

$47 : $225.75 = 21%

Since 148 employees belonged to the profit sharing unit, then over the 5.5 month time interval described in Table 19, the profit sharing unit of SIC achieved a 2.44 percent savings in labour cost.

Total wage in 5.5 months:

$225.75 x 148 employees X 5.5 months = $183,760

Percentage of savings in labour cost:

$4,494 retained by SIC : $183,760 = 2.44%

**Table 19**

Monthly Profit Sharing Bonus Payouts
Pertaining to Research Question 1

| | Nov. (21)* | Dec. (20) | Jan. (21) | Feb. (22) | Mar. (21) | Apr. (9) |
|---|---|---|---|---|---|---|
| Total in Bonus Pool | $6,409 | 8,255 | 6,550 | 5,206 | 11,173 | 7,352 |
| Retained by SIC (10%) | $641 | 825 | 655 | 521 | 1,117 | 735 |
| Added to Employees' Social Fund (5%) | $320 | 412 | 327 | 260 | 558 | 367 |
| Available for Bonus Pay-Out (85%) | $5,448 | 7,017 | 5,567 | 4,425 | 9,497 | 6,249 |
| Total Employees In Plan | 148 | 148 | 148 | 148 | 148 | 148 |
| Payout per Employee | $37 | 47 | 38 | 30 | 64 | 42 |

| | |
|---|---|
| Total Savings from Profit Sharing: | $44,945 |
| Total Retained by SIC: | 4,494 |
| Total Added to Employees' Fund: | 2,247 |
| Total Bonus Paid Out: | 38,203 |
| Total Bonus Per Employee: | 258 |
| Average Monthly Bonus Per Employee: | 47 |

* Number in parentheses indicate the number of days worked in the month.

**Results of testing of research question 2.**

Research question 2 addressed the issue of whether or not participation in a survey study of profit sharing would affect the study variables. Two MANOVA models were run to test this proposition; results of the multivariate analysis for the Experimental Group are shown in Table 20, while results for the Control Group are shown in Table 21. To the extent that participation in the study has an effect on employee attitudes and behaviours, differences in mean posttest responses should have been observed between employees who took the pretest and those who did not.

Table 20 shows the findings for the Experimental Group. Here, there were some differences in means, ranging form almost identical scores ( a difference of 0.02 on Information Adequacy, $F = 0.121$) to a difference of 0.44 on Attitude Towards Profit Sharing ($F = 2.641$). The mean difference between the groups for all 18 variables was 0.151, suggesting similarity between the two groups. This is also reflected in the finding of MANOVA model that even the largest observed difference was not significant. In other words, multivariate tests for the posttest responses between experimental group subjects who took both the pre and posttest (matched) and experimental group subjects who took only the posttest were not significant at $p < 0.05$.

Table 21 shows a parallel analysis using MANOVA for the Control Group. Differences here between groups were

even smaller, ranging from a low 0.02 on Information Adequacy, ($F$ = 0.182) to a difference of 0.01 on Organisational Commitment ($F$ = 0.680). The mean difference between the groups of all 18 variables was only 0.074, suggesting considerable similarity between the two groups. None of the $F$-tests for MANOVA model came near the cutoff point for statistical significance. Thus, multivariate tests for posttest responses between control group subjects who took both the pre and posttests (matched) and control group subjects who took only the posttest were not significant at $p$ <0.05.

| | | | |
|---|---|---|---|
| Identification | 5.62 | 5.28 | 0.465 |
| Intrinsic Motivation | 5.24 | 5.39 | 0.921 |
| Job Satisfaction | 4.79 | 4.93 | 0.707 |
| Pay Satisfaction | 4.83 | 4.73 | 1.033 |
| Intention to Turnover | 3.57 | 3.64 | 0.102 |
| Organisational Commit. | 5.35 | 5.51 | 0.976 |
| Alternative Commitment | 2.10 | 2.46 | 0.362 |
| Calculative Commitment | 4.57 | 4.69 | 0.490 |
| Co-operative Behaviour | 5.37 | 5.52 | 0.926 |
| Attitude Towards I/R | 4.62 | 5.06 | 2.641 |

**Table 20**

Results of MANCOVA for Posttest Differences
Between Matched and Posttest Only Responses
for Experimental Group Pertaining to Research Question 2

| Variables | Pre & Post-test Means N=89 | Post-test only Means N=59 | F-test |
|---|---|---|---|
| Supervisory Commu. | 5.16 | 5.30 | 0.849 |
| Peer Communication | 4.66 | 4.79 | 0.801 |
| Organisational Commu. | 5.27 | 5.42 | 0.931 |
| Individual Ideas | 5.16 | 5.30 | 0.859 |
| Team Ideas | 5.37 | 5.52 | 0.908 |
| Communication Climate | 4.96 | 5.10 | 0.854 |
| Information Adequacy | 1.62 | 1.64 | 0.121 |
| Profit Sharing Concepts | 5.32 | 5.48 | 0.983 |
| Identification | 5.62 | 5.78 | 0.965 |
| Internal Motivation | 5.24 | 5.39 | 0.921 |
| Job Satisfaction | 4.79 | 4.92 | 0.793 |
| Pay Satisfaction | 4.53 | 4.23 | 1.832 |
| Intention to Turnover | 2.57 | 2.64 | 0.382 |
| Organisational Commit. | 5.35 | 5.51 | 0.976 |
| Alienative Commitment | 2.10 | 2.15 | 0.305 |
| Calculative Commitment | 4.57 | 4.69 | 0.490 |
| Cooperative Behaviour | 5.37 | 5.52 | 0.926 |
| Attitude Towards P/S | 4.62 | 5.06 | 2.641 |

**Table 21**

Results of MANCOVA for Posttest Differences Between Matched and Posttest Only Responses for Contro Group Pertaining to Research Question 2

| Variables | Pre & Post-test Means N=136 | Post-test only Means N=129 | F-test |
|---|---|---|---|
| Supervisory Commu. | 5.00 | 5.08 | 0.664 |
| Peer Communication | 4.30 | 4.36 | 0.487 |
| Organisational Commu. | 5.42 | 5.51 | 0.762 |
| Individual Ideas | 5.22 | 5.30 | 0.649 |
| Team Ideas | 4.65 | 4.73 | 0.669 |
| Communication Climate | 4.85 | 4.93 | 0.701 |
| Information Adequacy | 1.60 | 1.62 | 0.182 |
| Profit Sharing Concepts | 5.18 | 5.27 | 0.753 |
| Identification | 6.02 | 6.12 | 0.854 |
| Internal Motivation | 5.22 | 5.30 | 0.652 |
| Job Satisfaction | 4.76 | 4.84 | 0.661 |
| Pay Satisfaction | 4.78 | 4.86 | 0.680 |
| Intention to Turnover | 2.60 | 2.64 | 0.328 |
| Organisational Commit. | 5.58 | 5.68 | 0.871 |
| Alienative Commitment | 2.00 | 2.04 | 0.315 |
| Calculative Commitment | 4.76 | 4.84 | 0.702 |
| Cooperative Behaviour | 5.28 | 5.37 | 0.747 |
| Attitude Towards P/S | 4.21 | 4.28 | 0.572 |

## Summary

Several conclusions were reached as a result of the statistical analysis of the data collected in this study. First, a certain degree of nonequivalency existed between the experimental and control groups. Second, the scales used to measure the study variables were reliable and valid. Finally, the results supported the first general hypothesis, two sub-hypotheses, and both of the research questions that were proposed in the study. In the next and final chapter the results of the data analysis and their implications will be thoroughly discussed.

# Chapter 7

# DISCUSSION OF RESULTS

## Chapter Overview

In this chapter the results of the data analysis are discussed. The primary point of discussion relates to the effects of profit sharing that were observed in this study and the consistency of these findings with previous research. Other aspects of the discussion are implications of the findings for profit sharing theory development, the managerial implications, limitations of the study, and directions for future research.

## Effects of Profit Sharing

According to the data analysis presented in Chapter Six, the SIC profit sharing plan apparently had few of the hypothesised effects. Profit sharing participation had positive effects on the communication behaviours of employees and supervisors, as perceived by employees, but no changes in communication or organisational outcomes were realised. Findings showed increased productivity and because of the bonus formula, employees shared in the profits.

**Difference in Communication Behaviour.** The finding that certain communication behaviours were more favorable for profit sharing participants than for non-participants

supported the general hypothesis of the integrated profit sharing theory model. Specifically, significant differences were observed on the dimensions of Peer Communication and Team Idea Communications. These findings suggest that one of the "hows" or "whys" of profit sharing is that it is operationalised by changing the way in which organisation members communicate with each other. Profit sharing participants tended to talk to their supervisors and their peers about work-related problems and specific task issues more often than non-participants. Profit sharing participants also perceived that they received useful and accurate information, had frank discussions about work situations, were encouraged to discuss problems, and talked about ideas for improving their work methods and environment more often than non-participants. Profit sharing participants exhibited more favorable perceptions than non-participants about how often their communications with the formal organisation encouraged participation and were useful, accurate, sincere, and team-oriented. It appears that when a reward system which focused on varying pay based on group performance was implemented, employees and management talked more to each other about the task-related problems to be solved in order for a bonus to be realised.

These observations suggest that the profit sharing process operates according to cognitive models of participatory effects. Such cognitive models imply that

participation in decision making, such as how the group can best solve a work-related problem, is an effective management strategy because it enhances the flow and use of important information in the organisation (Miller & Monge, 1986a). This applies to profit sharing in that, when pay is perceived as contingent on participation in the development and implementation of cost-reducing changes, employees and management exchange more information about both the work itself and their experiences. When this occurs, knowledge of the task environment increases; workers are then better equipped and more likely to make and implement suggestions for changes that will lead to productivity improvement. More generally, the positive effect of profit sharing participation on communication behaviours observed in this study is consistent with previous empirical findings (Graham-Moore & Ross, 1983; Lawler, 1985; Mohrman et al., 1987; O'Dell, 1987) and with profit sharing theory (Frost et al., 1974).

One of the two variables within the communication behaviours group that differed significantly by group was Team Idea Communication. This result is consistent with the findings of Mohrman et al. (1987), who found that only attitudes and cognitions with a direct connection to profit sharing changed in a positive direction. These researchers reported that workers with more distant, indirect connections (for example, Attitudes Towards the

Organisation) remained unchanged. Since Team Idea Communication was the behaviour with the closest, most direct connection to profit sharing, it is logical that it would change more than the other communication behaviours.

The second dimension that showed a significant difference was that of Peer Communication, a finding which supported Hypothesis 1b. This dimension is important in that it measures behaviours relevant to the day-to-day interaction of co-workers; specifically, the scale assesses the communication style and frequency of Peer Communications. The finding that profit sharing is associated with enhanced Peer Communication suggests a probable positive impact in term of productivity, and thus profitability.

**Effects on productivity.** Previous findings about profit sharing were reconfirmed by results of the current study. Productivity, as measured by the bonus formula indices, improved over the time period during which the profit sharing plan was implemented. This is consistent with most previous reports of profit sharing plans (Bullock & Lawler, 1984; Mohrman et al., 1987; O'Dell, 1987; Schuster, 1984a; U.S. General Accounting Office, 1981).

However, the lack of consistency in the amounts of the monthly bonus received by the participants in the SIC plan suggest that this finding should be regarded cautiously with regard to its strength as an indicator of the success

of the profit sharing plan. The fact that there was so much variation in the size of the bonus implies that the information system used to measure group performance may not have been totally reliable. It is also possible that the bonus formula itself was not an accurate means of measuring changes in productivity. The fact that the experimental site was a new plant suggests that one or both of these conditions existed.

**Effects on communication outcomes and organisation outcomes.** The results of this study did not reveal any changes in either communication or organisation outcomes. Previous studies have supported the expectation that profit sharing participation would have an effect on these dependent variables (Bullock & Lawlwer, 1984; Graham-Moore & Ross, 1983; Mohrman et al., 1987; Schuster, 1983a, 1984b; White, 1979). Since the hypothesised effects were not found, and because the changes in the communication behaviour variables were somewhat limited, several possible explanations for this lack of significance will be explored. These explanations fall into two categories: (1) experimental design problems, and (2) measurement error.

One likely reason for the lack of significant results is that the six month interval between pretest and posttest was too short of a time period for the profit sharing plan to be completely in place. As a consequence, changes in employee perceptions and attitudes might not

occur. Support for this explanation exists in White's (1979) finding that Scanlon Plan success was highly correlated with the number of years a company had such a plan in place. The average duration of successful plans studied by White was six years, while other authors cite successful plans of five and ten years duration (Mohrman et al., 1987; Schuster, 1983a, 1984b).

This explanation is especially relevant to the lack of difference observed in variables considered to be indirectly affected by profit sharing (e.g., commitment, satisfaction, and identification). That is, individuals may change their behaviours before they actually change their attitudes, particularly if the pressure to change behaviour (receiving a bonus) is strong enough. The measurements of this study, taken six months after implementation of the profit sharing plan, are best labeled as a "during implementation" (Huse & Cummings, 1985) measurement of the plan. As such, current findings might be most meaningfully interpreted as a measure of the degree to which profit sharing was in place, rather than as an actual measure of the final outcomes of the plan.

Further support for this line of reasoning is provided by the fact that the intervention was known not to be entirely in place until well into the third bonus period. The participation mechanism, in the form of quality action teams, did not begin until approximately 16 weeks after

administration of the pretest. These teams were not uniquely identified with the profit sharing plan and the group bonus. Instead, they were really a separate participation practice that was already established throughout SIC. Management felt that existing SIC policies and structures promoted a high level of employee involvement and that a dedicated hierarchy of suggestion committees was not needed for the profit sharing process to be successfully implemented. By not implementing a dedicated participation mechanism for the profit sharing plan, an opportunity to reinforce the contingency of the group bonus on group suggestion-making was lost. This lack of emphasis on the link between the participation mechanism and the bonus formula may explain the lack of change in understanding of basic profit sharing concepts among the participants. Previous research has suggested that the use of a pre-existing participation mechanism when profit sharing is adopted by an organisation may be a situational determinant of profit sharing success (Graham-Moore & Ross, 1983). Another implication of this characteristic of the SIC profit sharing plan is that since nonparticipants were also involved in quality action teams much of the change that was observed among participants might be attributed to the bonus formula component of the profit sharing plan.

Evidence of the "during implementation" nature of the findings of this study is also provided by the fact that

none of the communication or organisational outcome variables (understanding of Profit Sharing Concepts, Attitude Towards Profit Sharing, and Cooperativeness) differed significantly. This leads to the conclusion that six months after the beginning of the administration of the pretest, the SIC profit sharing plan was not fully in place.

Another possible reason for the relative lack of hypothesised effects concerns the experimental design, and particularly the lack of control over the treatment inherent in the field setting of the study. In reality, the profit sharing plan intervention actually began with the initial recruiting of applicants for employment at the experimental site. Recruiting materials listed "innovative group pay-for-performance reward system" as an attractive feature of permanent part-time employment at SIC. Corporate SIC personnel recruiters attempted to explain the profit sharing concept to potential applicants during preliminary employment interviews. Since the intervention actually began before the experimental group members were hired, it is difficult to determine to what extent the pretest fulfilled its intended function. It was designed to be a time-zero measure of attitudes, behaviours, and perceptions as they existed before the more obvious components of the intervention (suggestion making and bonuses) were put into place. In reality, the pretest was given approximately eight weeks after employees started receiving information about,

and thus being influenced by, the profit sharing programme.

Three kinds of measurement error may explain the apparent lack of hypothesised effects of profit sharing on most of the study variables: (1) ceiling effects, (2) beta changes, and (3) gamma changes. A ceiling effect is one in which attitudes and perceptions are so high or favorable (at the ceiling) at the time of the pretest that there is no room for improvement over the course of the treatment. Indeed, as presented in Table 9, responses to nearly all of the pretest variables ranged from favorable to highly favorable among both the experimental and control groups. One reason that the ceiling effect existed in this case is because of the positive SIC culture. The positive reputation of SIC in Iran, combined with the fact that all of the respondents were new hires, partially account for the positive pretest responses. Pretest responses may have reflected individuals' preconceived notions rather than a reliable individual-level assessment. It is somewhat ironic, but often true, that the most innovative and effective organisations are those firms that implement organisational development interventions designed to improve an already positive work environment. Lawler (1985) has made this observation, while also noting the likelihood for disappointing empirical results in these situations.

"Beta" changes (Golembiewski, Billingsley, & Yeager, 1976; Millsap & Hartog, 1988) are changes that

result from an intervention when respondents alter their subjective evaluation of a measurement scale. In other words, shifts occur in the respondents' internal calibration of a scale between measurements. A change in response results from a change in the respondent's evaluative rating scale for the variables being measured rather than from any actual change in behaviour or psychological states. A common situation is one in which there is negative or no observed change, implying no intervention impact. But closer evaluation reveals that the observed results reflect a shift in the respondents' evaluation of a scale toward a more "realistic" outlook. This shift may in fact reflect a positive outcome of the intervention (Millsap & Hartog, 1988). In many cases, beta change is one of the objectives of organisational change and development interventions.

There may also be an attempt to change both organisational functioning and individual perceptions or conceptualisations of this functioning. It is likely that in a case such as the SIC profit sharing plan in which initial expectations of being a member of the organisation were so high, the apparent lack of results may reflect a recalibration of respondents' evaluative scales to more realistic perceptions. Behaviour, attitudes, and perceptions may actually change over the course of the study period, but were masked by simultaneous recalibration of scales. For example, if a profit sharing participant had really been

"sold" on the profit sharing concept at initial hiring, and believed that they were going to be much more satisfied with their job at SIC than with any other job they had ever had, they might report job satisfaction on the pretest as "good" compared to how much better they expected it could be in the future. However, after working in the profit sharing environment for six months they may have realised that their initial perceptions and expectations of how satisfied they would be in this job were unrealistic. After six months the respondent had a different idea of what constitutes "good" job satisfaction. Even though they were really more satisfied than at the time of the pretest, they reported job satisfaction as "good" again on the posttest. If they had used the same scale as they did for the pretest (with equal differences between "good" and "fair" levels of job satisfaction), they probably would have reported job satisfaction as "very good" on the posttest. Conversely, if the posttest scale had been used on the pretest, they probably would have reported job satisfaction as "fair" on the pretest. Consequently, even though job satisfaction was reported as "good" on both the pretest and the posttest, the profit sharing participant's attitude had actually improved.

"Gamma" changes (Golembiewski et al., 1976; Millsap & Hartog, 1988) are shifts in the meaning or conceptualisation of the construct being measured that occurs during an intervention. As in the case of beta

change, one intent of an intervention may be to induce gamma change. An apparent lack of significant changes in measures from pretest to posttest may reflect some degree of gamma change, masking actual changes in behaviour. When one considers the positive reputation of SIC, the fact that all the respondents were new employees, and that experimental group members knew they were part of an innovative trial reward system, it is very likely that what appeared to be a lack of hypothesised effects actually reflects some degree of beta and/or gamma change. Both beta changes and the ceiling effect have been proposed as possible explanations for an apparent lack of significant results in previous profit sharing research conducted in a high involvement, high profile organisation (Mohrman et al., 1987).

Overall, few of the hypothesised effects of profit sharing participation appeared to have been realised during this study. Due to the relatively short time interval of the study, the results are most meaningfully interpreted as a "during implementation" measure of the degree to which the profit sharing plan was in place by the time of the posttest. The intervention was partially in place to the extent that productivity improved and participants received bonuses, accompanied by some positive changes in communication behaviours. However, even six months after implementation, participants still showed limited understanding of Profit Sharing Concepts, neutral Attitudes

Towards Profit Sharing, and an unchanged level of Cooperativeness. It is feasible that some of the apparent lack of change in the study variables may actually have reflected beta and gamma changes that occurred during the intervention.

**Implication for Theory Development**

The results of this study are very supportive of the application of cognitive models of participative effects to profit sharing theory. As mentioned previously, the changes in communication behaviours that were observed indicate that information sharing and idea generation are important components of the profit sharing process. This is consistent with cognitive models in that they consider information to be crucial, and they predict that increases in productivity will be stronger where workers have good information about the task and changes to be made (Miller & Monge, 1986a). That is what occurred in this study.

Cognitive models also predict that immediate increases in satisfaction as a result of participation will not occur. Rather, it is expected that eventually satisfaction will increase in responses to knowledge of favorable results. The results of this study are also consistent with this prediction because there were no changes in satisfaction or other attitudes indirectly related to profit sharing. Instead it is predicted that satisfaction eventually will increase as the bonuses

received by the participants become more consistent and more contingency between suggestion making and group change implementation is established. Cognitive models also propose that increases in productivity will be attributable to specific inputs from subordinates on issues in which they are interested and knowledgeable. Increases in productivity will not be attributable to the "warm glow" resulting from simply working in a participative work climate or for nondirective leaders (Miller & Monge, 1986b).

Application of the cognitive models to profit sharing theory prescribes that less attention be paid to participation as an explanation of how the profit sharing process works and more attention given to the transfer of information and knowledge throughout the organisation as a possible explanation. This is supportive of the integrated model of profit sharing theory and an organisational communication perspective of profit sharing research. They conceptualise organisational communication as the communication channel through which transfer of information and knowledge between employees and management occurs and through which the profit sharing process is operationalised.

The congruency approach to profit sharing theory proposes that profit sharing will be effective to the degree that it is congruent with the organisational context. According to this theoretical perspective, the context most congruent with profit sharing is the high involvement design

(Lawler, 1982; Mohrman et al., 1987; Scott, 1995). The findings of this study support this model of profit sharing theory because SIC possesses most of the characteristics of high involvement organisations, and the profit sharing plan appeared to be working (bonuses were being generated) even though the plan was not totally in place. It could be that the high involvement context and its fit with the general concept of profit sharing was important enough to actually function as a substitute for much of the explicit participation mechanisms commonly included in the design and implementation of a profit sharing plan.

The results of this study are encouraging for the development of profit sharing theory. A cognitive, rather than affective, model of profit sharing should be further developed with an increased focus on the role of organisational communications as an explanation of how the profit sharing process operates. The role of participation in the profit sharing process should be conceptualised as an organisational contextual factor and its significance examined within the framework of congruence of organisational design with profit sharing.

Findings were supportive of previous attempts to develop measurement scales of attitudes, perceptions, and behaviours that are directly and closely related to profit sharing (Mohrman et al., 1987; Kruse, 1992). Results of reliability assessment were supportive of the scales

developed to measure understanding of Profit Sharing Concepts, Attitudes Towards Profit Sharing, Cooperativeness, and Idea Communication. These scales all had acceptable estimates of reliability. Further empirical profit sharing studies should build upon these scales and seek to further develop additional scales for the measurement of variables critical to understanding how the profit sharing process operates.

The most significant implementation of this study for managers involved in this study and managers in other firms in the future is that the implementation of a profit sharing plan requires a relatively long period of time and therefore management must make a long-term commitment to profit sharing. Patience is required to achieve high levels of success. Indeed, to even get the entire intervention into place requires more than six months. Also, managers must realise that even though the plan may appear to be in place, due to change in productivity and the resulting bonus distributions, many of the valuable behavioural, attitudinal, and perceptual changes necessary for profit sharing to become institutionalised will lag the more obvious and more measurable changes.

Additionally, managers must realise that the negative changes which may occur during implementation are characteristic of organisational development interventions. Often employees acquire unrealistic or inaccurate

expectations of what and how quickly results of an intervention will occur. When, in their minds, "nothing is happening", it is very likely that attitudes, behaviours, and perceptions will change negatively (Huse & Cummings, 1985). Finally, managers must realise that interventions such as profit sharing begins the minute that conversation about them begins. As seen in the results of this study, the most significant differences between the experimental and control groups occurred in the pretest scores. It seems from these results, that profit sharing had begun with the recruitment material and the interviewing process. Four weeks into their employment with SIC which was at least four weeks before the first bonus was distributed, and months before the participation mechanism began, profit sharing participants were already behaving differently, in terms of communication behaviours, and experiencing different levels of communication and organisational outcomes than nonparticipants.

## Limitations of the Study

Generalisation of the results of this research are limited by several characteristics of the study. In addition to the basic limitations of the nonequivalent control group design already discussed in Chapter Five, various other limitations were inherent in the design of the study. The most significant limitation to generalisability arises from the field setting of the experiment and the fact that this

study was conducted in a new plant with new employees. This is a rather specific work experience which may not be generalisable to all other work experiences namely established plants and experienced workers. It is possible that the profit sharing plan was not in place due to the distractions and problems of a new plant and new employees and that perhaps this was too ambitious of a project to obtain "clean" experimental results. Perhaps too many new things occurred simultaneously to allow profit sharing to operate as it would under more controlled conditions. Other characteristics of the study that limit its generalisability are that it was not truly longitudinal or cross-sectional.

It should also be stressed that virtually all research on profit sharing to date has been carried out in Western cultural settings. Industrial enterprises in these countries generally also use more advanced technologies, employ more skilled labour, and have better employee training than firms in Iran and other developing countries. In spite of these differences, the results of this study suggest that with respect to responses to financial incentives, there are greater similarities between employees in Western enterprises and those in Iran.

Another limitation of the study is one that all of the data was self-reported survey data with the exception of the limited financial data used for discussion of the first research question. Organisational development research in

general has been ed for its reliance on "soft" perceptual measures and its relative neglect of "hard" objective measures (Nicholas & Katz, 1985). In this case an effort was made to address this criticism, but due to the fact that the experiment took place in a new plant no historical objective organisational performance data existed. Also, because consistent management information systems did not exist between SIC plants, due to differences in volume and type of work performed at each plant, a control group basis of comparison for this data did not exist.

Findings of this study should also be interpreted with caution, given that most previous research on profit sharing has been conducted in major industrialised countries. In contrast, the current study was based on data collected from an organisation located in a developing nation. This implies that the findings reported in this dissertation may not be comparable in certain respects to results derived from companies operating in Western European or American economies. At the same time, however, the current findings are valuable in providing a fresh perspective on the dynamics of profit sharing plans and on widening the scope of the literature.

Finally, the generalisability of the results of this study may be limited by the fact that the sample was taken from a population of part-time employees. Little is known about the effects, if any, of part-time employment

status on employee attitudes and behaviours (Eberhardt & Shani, 1984; Rotchford & Roberts, 1982). It is known that part-time is a distinctly different employment status than full-time with corresponding differences in employee demographics, hours of work, alternative employment opportunities, and treatment on the job (e.g., reward systems, training, promotion) (Eberhardt & Shani, 1984; Hom, 1979). For this reason it is wise to interpret these study results within the context of part-time work experiences. This is not a serious limitation for two reasons: (1) differential effects of part-time and full-time employment status have not been empirically established, and (2) SIC human resource policies are oriented toward nondifferential treatment of full and part-time employees with respect to pay, benefits, training, and employee involvement opportunities. A remaining consideration is that the part-time status of the SIC profit sharing participants may have been one reason why it took so long to get the profit sharing intervention into place. It required twice as long a time interval for part-time employees, averaging 20-22 hours of work per week, to accumulate the same number of hours of contact time with the organisation and the profit sharing plan as it would for full-time employees averaging 48 hours of work per week.

## Directions for Future Research

Much of the contribution of this study to the

existing body of profit sharing research lies in its potential for stimulating future empirical research and theory development. On the basis of this research and the theory upon which it was developed, it appears that future profit sharing research should be focused according to the study of the implementation of profit sharing and the sequence of effects that occur. It will be useful to conceptualise future research studies according to effects of profit sharing upon variables directly and indirectly related to profit sharing. By studying the implementation process and the sequence of effects on variables according to their direct or indirect relationship with profit sharing, we may arrive at a clearer understanding of how and why profit sharing works.

The purpose of this quasi-experiment was to estimate the effects of profit sharing participation on communication behaviours, communication outcomes, and organisational outcomes. Many of the hypothesised effects of profit sharing were not realised according to the empirical results of the study. The major finding was that profit sharing participation does affect communication behaviours in general. Most specifically, it positively affects the reported levels of Team Idea Communication and Peer Communication. Other empirical findings were: (1) profit sharing participation improves work group productivity and financial returns to the organisation and its individual

members, and (2) participation in a research study has no effect on profit sharing participation.

One significant conclusion that can be drawn from these results is that the profit sharing process operates in part by changing the communication behaviours of its participants. This argument is consistent with an organisational communication perspective on profit sharing. Another conclusion drawn from the data analysis is that reliable measurement scales are available with which during implementation measures of profit sharing interventions may be obtained. This will improve an organisation's ability to assess exactly what aspects of the intervention are in place and to more effectively evaluate the realised effects of profit sharing participation.

In conclusion, profit sharing represents an appropriate response to changes in the many economic and social components of the business environment that are occurring today, and that will occur in the future. As the practice of profit sharing increases, the results of this study should be useful for developing an understanding of how and why the profit sharing process works and in what situations it is most effective.

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# APPENDICES

Shahvand Industrial Company Profit-
Sharing Bonus Formula Indices Computation

# APPENDIX A

## Shahvand Industrial Company Profit-Sharing Bonus Formula Indices Computation

## Shahvand Industrial Company Profit-Sharing Bonus Formula Indices Computation

Operating performance indices will be tied to funding formulas for a bonus pool:

Number of items manufactured:

$100 per press-cycle better than the threshold rate of 90 press-cycle per shift per worker.

Example: Each worker performs 90 press-cycles (opening the press, taking the cured rubber out of the mould, placing raw material in the mould, and closing the press.) per each eight hour shift in average. $100 will be added to the pool for each press-cycle more than 90.

Rate of Rejects:

85 cents per kilogram better than the threshold of 7% rate of rejects.

Example: The rate of rejects (over-cured, under-cured, mould cavity not filled out, air bubble in products, incorrect formula, error in dimension, etc.) at SIC is 7% which is slightly over the industry norm. For every kilogram of reject under 7% of total production, 85 cent per kilogram will be added to the pool.

Down time:

$10 per press-hour under the threshold of 27 press-hour, per month.

Example: At 720 press-hour per month, (factory working three 8 hour shifts, seven days a week) the threshold down time is 27 press-hours, per month. $10 will be added to the pool for every press-hour when the down time drops under the threshold.

On time shipment:

$185 per on time shipment above the threshold rate of 84%.

Example:

At 18 shipments per day, multiply by 6 shipping-days per-week and an 84% threshold rate, the bonus starts at 91 on-time shipments for the week. For each on-timed shipment above 91, $185 is added to the bonus pool.

# APPENDIX B

## Profit Sharing Study Scales

**Profit Sharing Study Scales**

Section B: Communication Behaviours: Supervisor and Co-Worker

Items 1-8: Adapted from Dennis Communication Climate Inventory (Dennis, 1975; 1974)

Items 9-13: Adapted from Hawkins and Penley, 1978.

Items 14-17: Adapted from Shahvand Ind. Co. Compensation Plan, 1988.

Section C: Communication Behaviours: Idea Communication

Items 1-6 Individual Idea Communication Scale (Mohrman et al., 1987)

Items 7-8 Work-group Idea Communication Scale (Mohrman et al., 1987)

Section D: Communication Outcomes: Climate

Items 1-16: Dennis Communication Climate Inventory.

Section E: Communication Outcomes: Information Adequacy

Items 1-21: Adapted from Hawkins & Penley, 1978.

Section F: Communication Outcomes:Profit Sharing Knowledge

Items 1-13: Understanding Profit Sharing Concepts Scale (Mohrman et al., 1987)

Section G: Communication Outcomes: Identification

Items 1-5: Moral Commitment Scale (Penley & Gould, 1988)

Section H: Organisational Outcomes: Internal Motivation

Items 1,2,4,5, 13,14: Internal Motivation Scale (Hakman & Oldham, 1975)

Section H: Organisational Outcomes: General Job Satisfaction

Items 7-11: Job Satisfaction Scale (Hakman & Oldham, 1975)

Section H: Organisational Outcomes: Pay Satisfaction

Items 3,6,12: Pay Satisfaction Scale (Seashore et al., 1982)

Section I: Organisational Outcomes: Intention to Turnover

Items 1,2,16: Intention to Turnover Scale (Lawler, et al., 1982)

Section I: Organisational Outcomes: Organisational Commitment

Items 3-15,17, 18: Organisational Commitment Scale (Porter & Smith, 1980)

Section I: Organisational Outcomes: Calculative Commitment Alienative Commitment

Items 19-23: Calculative Commitment Scale

Items 24-28: Alienative Commitment Scale (Both from Penley & Gould, 1988)

Section J: Organisational Outcomes: Cooperative Behaviours

Items 1-3: Individual Change Implementation Scale

Items 4-8: Working Cooperatively Scale

Items 9-10: Inter-team Cooperation Scale

Items 11-12: Team Change Implementation Scale (All scales from Mohrman et al., 1987)

Section K: Organisational Outcomes: Attitude Toward Profit Sharing

Items 1-15: Attitude Toward Profit Sharing Scale (Mohrman et al., 1987)

# APPENDIX C

## Shahvand Industrial Co. Employee Survey

# SECTION A

The following information is needed only for the statistical analysis of this survey. It will only be used to group responses and will remain completely confidential.

Employee ID number: _____

Age: _____

Sex: ☐ Male ☐ Female

Number of years of school completed: _____

Student status: ☐ Not a student
☐ Full time student
☐ Part time student

Name of school in which you are enrolled: _____

What is your major field of study? _____

What is your approximate current grade point average ? _____

Number of jobs held previously before this one: _____

Number of years of full-time work experience until now: _____

Number of years of part-time work experience until now: _____

Job title: _____

Work group: _____

How long have you been employed by Shahvand? _____

Group leader: _____

# SECTION B

As a Shahvand employee most of your communication at work is with either your immediate group leader or your co-workers. On this page is a list of ways in which your manager and co-workers communicate with you. Follow the example below and for each communication item listed indicate how often your manager does this and also how often your co-workers use these ways to communicate with you.

| | Group Leader | | | | | | | Co-worker | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Very Often | Often | Somewhat Often | Neither Often or Seldom | Somewhat Seldom | Seldom | Very Seldom | Very Often | Often | Somewhat Often | Neither Often or Seldom | Somewhat Seldom | Seldom | Very Seldom |
| Example: | | | | | | | | | | | | | | |
| Tells me good jokes..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 1. Encourages me to let him know when things are going wrong on the job..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 2. Expresses his confidence in my ability to perform my job..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 3. Encourages me to bring new information to his attention even when it may be bad news..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 4. Makes me feel that things I tell him are really important..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 5. Shows willingness to tolerate arguments and give a fair hearing to all point of views..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 6. Listens to me when I tell him about things that are bothering me..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 7. Talks frankly and candid with me..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 8. Gives me infomation about how well | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| we are meeting organizational goals... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 9. Gives me accurate information..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 10. Gives me information on time..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 11. Gives me useful information..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 12. Talks with me about work related things..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 13. Talks with me about personal things... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 14. Talks to me about plant's number of items manufactured..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 15. Talks with me about our plant's rate of rejects..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 16. Talks with me about our plant's down time..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 17. Talks with me about our plant's on time shipment..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

# SECTION C

How much do you agree or disagree with each of the following statements as it relates to your experiences as a Shahvand employee?

| | Strongly Agree | Agree | Slightly Agree | Undecided | Slightly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 1. I often talk about opportunities for improvement I have noticed | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 2. I keep my ideas about work to myself | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 3. I often make suggestions on how to improve the way we do things around here | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 4. I tell somebody if I have an idea about work | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 5. I never make suggestions about improving the way we do our work | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 6. I often listen to other people's ideas and suggestions | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 7. My work team often discusses opportunities for improvement we notice around here | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 8. My work team comes up with a lot of suggestions for improving things | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

# SECTION D

How much do you agree or disagree with each of the following statements as it relates to your experiences as a Shahvand employee?

| | Strongly Agree | Agree | Slightly Agree | Undecided | Slightly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 1. I fell free to talk with my group leader..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 2. My group leader really understands my job problems.... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 3. My group leader makes it easy to do my best work..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 4. It is safe to say what I'm really thinking to my group leader..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 5. I can "sound off" about job frustrations to my group leader..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 6. I can tell my group leader how I feel about the way he manages my work group..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 7. I am free to tell my group leader that I disagree with him..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 8. I think I am safe in communicating "bad news" to my group leader without fear of any relation on his part..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 9. I think my co-workers say what they mean and mean what they say..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 10. I think Shahvand management says what they mean and mean what they say..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 11. Shahvand employees are open and candid with each other..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 12. Shahvand employees freely exchange information and opinions..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 13. Managers in our plant trust their employees..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 14. Employees in our plant trust their managers..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 15. The managers at our plant are as concerned about the well-being of all employees as they are about productivity..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 16. At our plant, employees' ideas and innovations have contributed to more effective operations..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

# SECTION E

You can receive information about various topics in Shahvand. For each topic listed on this page mark the response that best indicates: (1) the amount of information you ARE receiving on that topic and (2) the amount of information you NEED to receive on that topic, that is , the amount you HAVE TO HAVE in order to do your job.

| | Very Much<br>Much<br>Somewhat Much<br>Some<br>Somewhat Little<br>Little<br>Very Little | Very Much<br>Much<br>Somewhat Much<br>Some<br>Somewhat Little<br>Little<br>Very Little |
|---|---|---|
| | *This is the amount of information I need:* | *This is the amount of information I receive now:* |
| 1. How well am I doing my job..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 2. How to receive a pay increase..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 3. Promotion opportunities..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 4. Additional training opportunities and requirements..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 5. Reasons for doing specific tasks in my job..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 6. My job procedures..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 7. My job goals..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 8. How my job relates to other jobs..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 9. Important new product development at Shahvand..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 10. How to do my job..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 11. What work needs to be done..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 12. Shahvand's corporate goals..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |

| | | |
|---|---|---|
| 13. My job benefits..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 14. Complaint procedures..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 15. Shahvand's general policies..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 16. How technological changes affect my job..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 17. Mistakes and failures of our plant..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 18. Mistakes and failures of Shahvand..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 19. How my job-related problems are being handled..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 20. How corporate-wide decisions that affect my job are made..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |
| 21. Specific problems faced by Shahvand management..... | 7 6 5 4 3 2 1 | 7 6 5 4 3 2 1 |

# SECTION F

How much do you agree or disagree with the following statements?

| | Strongly Agree | Agree | Slightly Agree | Undecided | Slightly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 1. I share in the financial gains of this plant..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 2. When this plant is successful, I share in the rewards..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 3. When we cut costs, we get part of the savings..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 4. Increased productivity means higher pay to employees..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 5. It pays to submit ideas and suggestions..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 6. Ideas and suggestions help me make more money..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 7. It doesn't make any difference if I contribute ideas..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 8. I am likely to make more money if I contribute my ideas..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 9. Working smarter pays off around here..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 10. It pays for us to control costs..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 11. It pays to cooperate here..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

# SECTION G

How much do you agree or disagree with each of the following statements as they relate to your experiences as a Shahvand employee?

| | Strongly Agree | Agree | Slightly Agree | Undecided | Slightly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 1. I am dedicated to Shahvand..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 2. I fell it is my duty to support Shahvand..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 3. Whenever I am in public, I think of myself as an employee of Shahvand..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 4. It is my personal responsibility to help Shahvand achieve success..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 5. I get upset when people say bad things about Shahvand..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

# SECTION H

How much do you agree or disagree with the following statements?

| | Strongly Agree | Agree | Slightly Agree | Undecided | Slightly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 1. My opinion of myself goes up when I do this job well..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 2. I feel a great sense of personal satisfaction when I do this job well..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 3. Considering my skills and the effort I put into my work, I am very satisfied with my pay..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 4. My own feelings generally are not affected much one way or the other by how well I do on this job..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 5. Most people on this job feel a great sense of personal satisfaction when they do the job well..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 6. How satisfied are you with the amount of pay you get?.... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 7. Generally speaking, I am very satisfied with this job..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 8. I frequently think of quitting this job..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 9. I am generally satisfied with the kind of work I do in this job..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 10. Most people on this job are very satisfied with the job..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 11. People on this job often think of quitting..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 12. I am very happy with the amount of money I make..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 13. I feel bad and unhappy when I discover that I have performed poorly on this job..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 14. Most people on this job feel bad or unhappy when they find they have performed the work poorly..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

# SECTION I

How much do you agree or disagree with the following statements as they relate to your experiences as an employee at Shahvand?

| | Strongly Agree | Agree | Slightly Agree | Undecided | Slightly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 1. It is likely that I will actively look for a new job in the next year | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 2. I often think about quitting | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 3. Often, I find it difficult to agree with Shahvand's policies on important matters that relate to me | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 4. I am willing to put in a great deal of effort beyond that expected in order to help this organization be successful | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 5. I talk up Shahvand to my friends as a great organization to work for | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 6. I feel very little loyalty to Shahvand | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 7. I would accept almost any type job assignment in order to keep working for Shahvand | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 8. I find that my values and Shahvand's values are very similar | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 9. I am proud to tell others that I am part of Shahvand | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 10. I could just as well be working for a different organization as long as the type of work was similar | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 11. Shahvand really inspires the best in me in the way of job performance | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 12. It would take very little change in my present circumstances to cause me to leave Shahvand | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 13. I am extremely glad that I chose Shahvand to work for over others that I was considering at the time I joined..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 14. There's not too much to be gained by sticking with Shahvand indefinitely ..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 15. I really care about the fate of Shahvand..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 16. I will probably look for a new job next year ..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 17. For me this is the best of possible organizations for which to work ..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 18. Deciding to work for Shahvand was a definite mistake on my part ..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 19. I will give my best effort when I know it will be seen by the right people ..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 20. I get most involved in my work when I know I will get recognized ..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 21. I am motivated by thoughts of getting greater personal awards from Shahvand..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 22. I put effort into Shahvand to the extent that I get something in return for it ..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 23. I support Shahvand to the point that it supports me ..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 24. Sometimes I would like to walk out of Shahvand and never come back ..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 25. I often feel like I want to get even with Shahvand..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 26. I get angry when I think about Shahvand.... ..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 27. I feel trapped here ..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 28. No matter what I do around here, Shahvand remains unchanged ..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

# SECTION J

How much do you agree with the following statements as they relate to your experience as a Shahvand employee?

| | Strongly Agree | Agree | Slightly Agree | Undecided | Slightly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 1. I often work through issues that arise from changes that are made..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 2. I help determine the best way to accomplish proposed changes..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 3. I am able to get my suggestions for change or improvement implemented..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 4. We all work together as a team here..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 5. I cooperate with others to get the job done well..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 6. When problems arise, I work with others to try to solve them..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 7. I avoid working with others..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 8. I work here as an individual not as part of a team..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 9. My work team's dealing with other work teams go smoothly..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 10. My work team gets cooperation from other work teams..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 11. My work team helps plan the best way to put changes into practice..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 12. My work team helps make sure changes are properly implemented..... | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

# SECTION K

Currently, at the new Shahvand plant in Saveh a different type of pay system is being tried. Basically, the idea of this system is that any savings in plant operations due to cost reductions and employees suggestions for improved work methods, etc. are divided and distributed evenly among all hourly and salaried plant employees. The savings are calculated on a weekly basis, according to number of items manufactured, rate of rejects, down time, and on time shipment. The dollar amount for each week is placed in a bonus pool which accumulates and distributes at the end of each month. Based on this very limited information and other things we may know about this pay system. Please answer the following questions concerning your general attitude toward this type of pay system. NOTE: The name given to the pay plan in Saveh plant is "Team Q=P sharing".

| | Strongly Agree | Agree | Slightly Agree | Undecided | Slightly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 1. The way Team Q=P sharing works would be fair to employees | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 2. Team Q=P sharing would make sense for this plant, considering the type of work we do | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 3. Opportunities for Team Q=P sharing payouts would motivate me to do my best work | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 4. The Team Q=P formula sounds fair | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 5. I like the idea of Q=P sharing | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 6. Our customers would benefit directly from our Team Q=P sharing plan | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 7. The Team Q=P sharing plan would be good for employees | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 8. I have a real understanding of how the Team Q=P sharing plan would work | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 9. The Team Q=P sharing plan would be good for the plant | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

10. The Team Q=P sharing plan would strongly affect how we operate day to day..... 7 6 5 4 3 2 1

11. Different work groups would cooperate better as a result of Team Q=P sharing..... 7 6 5 4 3 2 1

12. The Team Q=P sharing idea makes sense to me..... 7 6 5 4 3 2 1

13. Whether a monthly bonus is paid would depend upon employee suggestion making..... 7 6 5 4 3 2 1

14. There is a good chance I could make a Team Q=P sharing suggestion..... 7 6 5 4 3 2 1

15. My earnings would probably be higher with Team Q=P sharing at this plant than without it..... 7 6 5 4 3 2 1