

**IMPROVING PROFITABILITY OF VERY SMALL AND SMALL FIRMS:  
THE IMPACT OF QUALITY PRACTICES IN  
THE HUMAN RESOURCES AREA**

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**ABSTRACT**

*This study compared the quality practices of very small and small firms in the human resources area. Hypotheses relating to empowerment, work teams, and training were developed and tested. An analysis revealed that there was a significant difference in empowerment practices between the two groups of firms, but no significant differences in team utilization or employee training. Profitability correlations divulged that team usage and certain aspects of employee training could improve profitability, depending on the size of the firm.*

**INTRODUCTION**

Delivering quality to customers has long been recognized as being paramount to a company's well-being because it results in more new customers, more business with existing customers, fewer lost customers, etc. (Albrecht & Zemke, 1985). As the millennium approaches, an increasingly competitive world economy has expanded the importance of quality from improving a firm's competitiveness to being necessary for survival (Haksever, 1996). Large firms, like Motorola or ATT's Universal Card Division (both Baldrige quality award winners), have obviously established quality practices. What is less clear is the current practices of small companies, particularly the very small firms, a population that has not received a great deal of research attention. How do these firms approach quality, how do they train their people to handle customer complaints or problems, etc.? Questions like these are particularly relevant since work teams, employee empowerment and involvement, employee training, and top management commitment have been noted as critical factors to the delivery of quality service (Lewis, 1989).

However, it is unknown whether there are size-based differences in the use of quality practices in the very small and small firms, and whether these practices contribute to firm performance.

This paper seeks to explore these questions. Specifically, it attempts to identify the quality practices of very small and small firms in the human resources area, and explore linkages of these practices to firm performance.

## BACKGROUND

Historically, quality assurance practices and the concept of continuous improvement were generally first utilized in manufacturing. With the assistance of statistical techniques, companies could benchmark their current quality level and begin to eliminate defects. As quality improvement became fairly common in manufacturing firms and companies strived for "zero defects" in their products, quality improvement moved out of the production realm and into all facets of a business (Schonberger, 1992). As the quality movement is not new, researchers have focused on quality implementation in all types of industries and all sizes of firms, often with mixed results (Ahire & Golhar, 1996). In fact, many quality improvement disappointments have been attributed to the failure to recognize the value of organizational context, e.g., firm size, etc. (Cole, 1993; Ahire & Golhar, 1996).

However, some of the principles of quality practices, like employee involvement and empowerment, should be easier to implement in a small firm, given the relative flexibility and informality of these companies (Manoochehri, 1988; Sonfield, 1984). Indeed, small firms should only suffer a disadvantage, when compared to larger firms, when it comes to resource-intensive quality practices, e.g., training programs (Haksever, Cook, & Chaganti, 1997; Newman, 1988). However, that assumes management competency, or the fact that "knowledgeable and committed management is essential for successfully implementing TQM" (Ahire & Golhar, 1996:2).

This commitment is often difficult to obtain, as small firms can lack managerial expertise which prevents them from focusing on the necessary human resource aspects of quality practices, e.g., the need for employee involvement and training (Ahire & Golhar, 1996). This can result in some of these firms viewing their workforce as a cost, not an investment. Berry (1995) cites the lack of management's ability in formulating good hiring practices as leading to wrong hires, excessive turnover and to what Schlesinger and Heskett (1991:17-18) call the "cycle of failure... high turnover leads to management's unwillingness to invest much in hiring, training, ... because people are going to quit anyway." This overall lack of professional management expertise for smaller firms (Sironopolis, 1997) can reduce the level of commitment of management to quality practices. Given the aforementioned circumstances, coupled with a relative scarcity of resources for very small and small firms --hereafter called VS&SFs-- one might expect that quality improvement practices would be lacking in VS&SFs.

Before we continue, however, we first need to clarify what we mean by the term "very small/small firm" as there is not a common definition (Cook & Barry, 1995). Of the different definitions, the most common cutoff point to distinguish smaller companies from large corporations is 500 employees. Smaller firms are then often divided into medium-sized businesses, which employ 100-499 people and small firms, which employ less than 100 (Megginson, Byrd, Scott, & Megginson, 1994; Longenecker, Moore, & Petty, 1997). Small firms can be divided further into a very small (VSF) category -20 or fewer employees- and a small (SF) category -21-99 employees (Haksever, et al., 1997). We focused on the VS&SFs.

Our interest was to compare the quality practices of VS&SFs along the commonly-accepted quality constructs of employee empowerment, training, and teamwork (Ahire & Golhar, 1996; Oliver, 1988; Stamatis, 1996; Greising, 1994). All of these quality dimensions would be applicable regardless of industry and are internally-based structures, i.e., top management can enact these practices without the need for outside cooperation (e.g., involving suppliers, etc.).

We posit that the differences in the characteristics of the VS&SFs would result in advantages and disadvantages with respect to quality. For example, consider resources. Understandably, there is a difference in resources between a five employee firm and a 1000 employee corporation, or even a 300 employee corporation. However, a reasonably-sized small firm (e.g., 90 employees) can also marshal substantially more resources than a five employee firm. How might these resource differences alter the quality practices of these firms, if at all? Specifically, we were interested if firm size (and associated resource availability) at the VS&SF level influenced a firm's quality practices, and if these practices influenced firm performance. In the subsequent sections, we discuss the hypotheses, methodology, and findings.

### HYPOTHESES GENERATION

**Empowerment** - The quality literature supports an empowered workforce as being very important to quality, particularly where employees take initiative, solve problems, resolve complaints, offer improvements, etc. (Haksever, 1996; Cusimano, 1993; Merron, 1994). Employees do so with the backing of top management and with the realization that outstanding customer service involves everybody at the firm. While in theory empowerment can unlock the employee's potential, in reality some employees can be uncomfortable with too much freedom and would rather operate within specific parameters (Aepfel, 1997; Cusimano, 1993). Therefore, empowerment can be viewed from two perspectives. The first is where empowerment enables people to do their work, make decisions within some prescribed limits, and operate with little supervision. Although sometimes referred to as partial empowerment (or empowerment with a "small e" -Stamatis, 1996), we will call this level of empowerment "employee involvement". The second perspective on empowerment describes situations (like self-managed work teams) where the employees determine not only how to do something, but what needs to be done (Merron, 1994). This requires a greater commitment on the part of management and the employees, and is what we mean when we use term "employee empowerment".

We would expect employee involvement to be equally prevalent in both VS&SFs. The informality and flexibility often found in the VS&SFs would be balanced by the need for the owner/manager to be in control. Even the reduction in informality that occurs when firms grow would likely be offset by the owner/manager becoming more disengaged from operations, which puts some distance between her/himself and the customer, and increasing the need for employee autonomy in handling problems.

We postulate that employee empowerment would likely be different between VS&SFs in that it involves the owner/manager giving up a measure of control as to the nature of the work environment. Haksever and colleagues (1997) suggest that a small firm would more likely be in a position to allow employees to initiate improvements in their work environments than a very small firm. Finally, given that involvement and empowerment offer the opportunity for a more productive and satisfied workforce (Oliver, 1988; Davenport; 1993), empowered companies would be more profitable than non-empowered firms. Therefore, we offer the following hypotheses:

H1a: The degree of employee involvement will be similar between very small firms and small firms .

H1b: The degree of employee empowerment in very small firms will be lower than in small firms.

H1c: Employee involvement and empowerment will each be positively related to profitability in very small and small firms.

Work Teams - The use of teams to improve quality is common in continuous improvement processes. For the purposes of our study, we defined a team as a group of employees designated by management to work together towards a specific purpose, either for a limited time or on an ongoing basis. This cooperation/collaboration is often considered a necessary component to the holistic environment needed for enhancing quality practices (Scholtes, 1989; Stamatis, 1992).

In our survey, we included only the firms with a minimum of five employees (see the methods section for further explanation) in order to provide the opportunity for teams to exist in all companies. Given the nature of VS&SFs, we were interested in how often teams were utilized, how they were rewarded, whether the owner/manager viewed them as effective, and if team usage impacted profitability. Since small firms (compared to very small firms) would in general employ a larger workforce, we posited that team usage would be greater in those firms.

Team effectiveness is a function of team objectives/expectations, norms, organizational philosophy, and measurement/rewards (Stamatis, 1996; Hoevemeyer, 1993). Further, rewarding teams based on their performance improves the likelihood that teams are more effective (Curley, 1994). Overall, since very small firms generally have less structure than small firms, they likely have less established reward systems. This, in turn, increases the likelihood of very small firms not rewarding team performance. Further, very small firms generally have fewer resources than small firms and, therefore, less capacity to invest in these teams. Finally, we posited that regardless of whether the firms are very small or small in size, the cooperative/ collaborative work environment induced by use of work teams would enhance firms' profitability.

H2a: Use of employee teams in very small firms will be lower than in small firms.

H2b: Rewards in very small firms will be tied less to team performance than in small firms.

H2c: Teams in very small firms will be less effective than in small firms.

H2d: Use of teams will be positively related to profitability in very small and small firms.

Employee Training - A key component of a quality program is having a knowledgeable workforce. Training regarding the tasks to be performed and clarifications about outcome expectations is an important element in creating this workforce. This training can vary from a few minutes of having someone explaining how the job is done (employees then left to their own devices), to formal training programs that the employees attend during normal working hours. The two aforementioned attributes of quality HR programs (empowerment and teams) implicitly recognize that employees have to be trained to handle problems or circumstances, to work effectively in teams, or to understand quality concepts/tools that are needed to benchmark performance levels (Haksever, 1996; Ahire & Golhar, 1996; Berry, 1995). Very small and small firms have a disadvantage (compared to larger firms) because the level of resources necessary to provide this training restricts many VS&SFs to what can be offered in-house (Sironopolis, 1997). Accordingly, since small firms tend to have more resources than very small firms, we would expect to see a greater commitment to training in small firms.

Next, given the resource differences, we would also expect that small firms would provide different types of training (e.g., using outside materials/experts, etc.) than the very small firms. Finally, we were interested if the benefits of higher levels of employee training more than offset its cost. If so, we would expect that VS&SFs with a more knowledgeable workforce would be more profitable than a less-trained workforce.

H3a: The amount of employee training in very small firms will be lower than in small firms.

H3b: The types of employee training offered in very small firms will differ from the types offered in small firms.

H3c: Employee training will be positively related to profitability in very small and small firms.

## METHOD

Questionnaire Development - We were interested in understanding the quality practices of VS&SFs. During a review of the literature, human resource-related quality practices that are common to small businesses were identified as training, teamwork, and empowerment. Owner/managers of six VS&SFs were interviewed to better understand how they viewed quality and how they responded to their customers. We then developed a questionnaire to assess the current quality assurance practices of VS&SFs. The questionnaire was pretested and sent to a random sample of 1000 VS&SFs.

Measures - Employee involvement and empowerment were measured through a series of questions asking about the degree of freedom employees have to make decisions concerning their workplace or customer interactions. Responses were coded on a binary scale where yes=1 and no=0. Work teams usage, effectiveness and rewards were measured on a seven point scale where 7= all the time and 1= never. Training was measured through 28 questions across four distinct types of training (on the job, use of audio/video tapes, apprenticeship with an experienced employee, and formal training programs). Moderate to heavy training and formal training were measured by subsets of these 28 questions. Responses were also coded on a binary scale where yes=1 and no=0.

Database Development - We focused on VS&SFs that had at least five employees. We put a five employee "floor" on our sample to ensure that a firm might have the opportunity to utilize teams, and that the customer contact person might be someone other than an owner/manager, thereby making questions about empowerment relevant. We developed our database of VS&SFs through the random selection of 1000 firms from an industrial directory in the Delaware Valley. The directory had over 20,000 firms listed from all sectors, which gave us a robust sample (even with the geographical limitations).

Response Rates and Non-Response Bias - We randomly selected an additional 200 firms and sent them the pretest to measure response rates and determine if the questionnaire was appropriate. We then randomly selected pretest non respondents and conducted phone interviews. T-tests were conducted to test for dissimilarity of replies between respondents and non-respondents. No significant differences were found between respondents and non-respondents.

However, based on the phone calls, we determined that approximately 19 percent of the firms in our database were not usable, because they were either branch offices of much larger corporations (14%) or had moved/failed (5%). This impacted our sample size.

We sent three mailings to 1000 firms which, after adjusting for large firm branch offices and undeliverables (19%), gave us a sample population of approximately 810 companies. As a further bias check, using wave analysis (Judge, Griffiths, Hill, Lutkepol, & Lee, 1985), we compared surveys from respondents who initially replied with respondents that replied after follow-up. No differences were found using wave analysis or the previous technique and, therefore, we concluded that the respondents were representative of the sample. We received 130 usable questionnaires (16 percent response rate).

### FINDINGS AND DISCUSSION

**Sample** - The large majority of the respondents were male (81%), and 71.5 percent of the respondents were the owner (with the rest being the general manager). Sales were generally regional, with two-thirds of total sales to customers within 100 miles. Exporting was not a major factor, as international sales accounted for less than five percent of total sales. Most sales were to the end users. Table 1 presents descriptive statistics on some of the background characteristics of the very small and small firms.

**Table 1: Descriptive Statistics on Background Characteristics of Very Small and Small Firms**

Variable	Very Small Firms		Small Firms	
	Mean	S.D.	Mean	S. D.
Age (years)	30.17	20.03	46.23	38.47
Percent of local sales	70.90	33.70	62.29	35.82
Percent of direct sales	79.88	31.44	82.45	29.31
# of employees	10.31	4.89	49.83	20.60
Percent return on sales	12.86	10.99	10.50	7.10

The mean size of the very small firms in the sample, measured in number of full-time equivalent employees, was ten employees. The mean size of the small firms was 50 employees. Therefore, the small firms were approximately five times larger than the very small firms. Overall, these were established companies, as the mean age of the small firm was 46 years versus 30 years for the very small firm. Over 70 percent of the total companies in both groups were profitable, and interestingly, their profitability (as measured by reported return on sales) did not significantly differ between the very small and small firms ( $p < .21$ ).

### Comparisons of Human Resource-Related Quality Practices

Table 2 presents the results of comparisons between the very small and small firms on the use of the selected quality practices.

**Table 2: Comparisons of Human Resource-Related Quality Practices Between Very Small And Small Firms**

Variable	Very Small Firms N = 77		Small Firms N = 53		Chi- Square & <i>t</i> -tests	All Firms N = 130	
	Mean	S.D.	Mean	S.D.	Values	Mean	S.D.
Employee Involvement	0.64	0.49	0.82	0.39	4.27*	0.42	0.50
Employee Empowerment	0.95	0.20	0.83	0.33	6.18*	0.40	0.49
<i>Usage of Teams</i>	3.53	2.21	3.37	2.05	<i>0.41</i>	3.47	2.41
<i>Effectiveness Of Teams</i>	5.35	1.27	4.97	1.20	<i>1.42</i>	5.21	1.23
<i>Team-Based Rewards</i>	3.89	2.25	3.37	2.15	<i>1.22</i>	3.65	2.21
Use of Training	.35	.17	.38	.17	0.90	0.33	0.15
Mod/Heavy Use of Training	.37	.41	.41	.19	0.92	0.49	0.26
Use of Formal Training	.23	.27	.32	.29	1.84+	0.26	0.28

*Italics = t-tests*, other variables compared using Chi-Square + =  $p < .10$  \* =  $p < .05$

**Empowerment Hypotheses** - On the survey, we asked respondents if employees can fix a problem without going to a supervisor. Our objective was to identify a work environment that did not require permission in order to correct a problem and where the employees would be involved (partial empowerment). We postulated that there would be no difference in employee involvement between VS&SFs. Using a Chi-square test, the involvement level was compared across the size groups. We found that employee involvement was significantly higher in small firms than in very small firms, thereby rejecting our hypothesis. We next considered employees' ability to make significant changes in their work environments. Our objective was to identify an empowered work environment, one where employees have the freedom to enact changes beyond simply solving customers' or other problems. With the need for control paramount in VSFs, we anticipated that VSFs would be less likely to allow these changes than SFs. Using a Chi-square test, we found that size does influence empowerment but not in the way that we hypothesized. It was the VSF employees who had significantly greater freedom to improve their work environment than did SF employees.

One reason for this higher level of employee involvement among the small firms compared to the very small firms could be that, in the interest of expeditious completion of tasks like customer

service, small firms found it necessary to delegate responsibilities to individual personnel rather than require referral to supervisors. Conversely, since the owner/supervisor is likely to be always on site, VSF employees may normally route problems to him/her. An interesting contrast between the very small and small firms was that while employee involvement was lower in the very small relative to the small firms, employees were more likely to be empowered in the very small firms. One explanation could be that the limited size of workforce meant that employees in very small firms were not only quite familiar with diverse tasks, but also had close contact with the owner/top manager. This may engender a high degree of trust and, therefore, freedom for workers to modify work conditions and to take actions on their own initiative as situations warranted.

We then considered (regardless of firm size) whether employee involvement and empowerment made a difference in profitability. Specifically, we grouped the entire sample into firms with high versus low involvement/empowerment using the median value as the cutoff point. After selecting VS&SFs which were profitable during the previous year, we used the Chi-square test to examine whether profitability (in percent return on sales) differed based on presence of employee involvement/empowerment. The Chi-square was non-significant ( $p=.965$ ), thereby causing us to reject H1c.

**Team Hypotheses** - Respondents rated the frequency of team usage, if teams were rewarded based on team performance, and the effectiveness of the teams on a seven point scale. Hypothesis H2a postulates that VSFs use teams less frequently than SFs. As seen in Table 2, a comparison of the t-test computed means of their reported team usage showed no significant differences between VS&SFs.

Respondents were asked if the firm rewarded employees based on team performance. Hypothesis H2b postulates that small firms' reward structure would reward team performance more than the very small firms' structure. Using a t-test to compare the means, there was no significant difference in rewards based on team performance between VS&SFs. Results for team effectiveness were similar. Therefore, firm size did not affect team utilization.

We then compared profitability based on team usage. After dividing the total sample of 130 firms into the two groups of high and low users of teams (using a median-based split), a t-test was run to compare profitability means. There was no significant difference in firm profitability based on team usage ( $p = .337$ ).

**Training Hypotheses** - Respondents were asked if they used one or more of the four methods to train their employees: on the job, use of audio/video tapes, apprenticeship with an experienced employee, and formal training programs. Respondents could indicate that they used any or all types across seven job functions, which ranged from understanding technical aspects of the job to selling techniques to quality concepts. As mentioned, training is an investment in the workforce, and we were interested if firms providing substantial training had better profitability. Given this investment, and the resources needed to offer out-of-house training, we were also interested in the overall training types and levels utilized by VS&SFs.

Hypothesis H3a postulates that very small firms provide less training overall than small firms. We developed two measures to determine high and low levels of overall training. The first summarized each firm's scores for all 28 items on training and this number was divided by 28 to obtain the aggregate training score. Firms were then classified as high users of training if their score was above the median for the sample of 130 firms, and as low if their score was below this

median. The second measure eliminated the "on the job" category, as this category was designed to identify circumstances of minimal training, where employees were basically left on their own to learn the tasks. The aggregate training score for this was calculated the same as the above, except for using 21 items (vs. 28). We computed the median again for the 130 firms and classified firms as moderate and heavy users of training if their total score was above the median, and as low users if the score was below the median. A Chi-square test indicated that there was no significant difference in training techniques between VS&SFs when considering all four techniques ( $p=.306$ ) or by excluding on the job training ( $p=.429$ ). Therefore, the hypothesis was rejected.

Hypothesis H3b postulated that there would be differences in the types of training offered to very small firm employees when compared to small firm employees. We believed that the resource-intensive nature of out-of-house training would preclude this from being a viable alternative for the very small firm. We compared VS&SFs individually with respect to each of the four types of training (on the job, use of audio/video tapes, apprenticeship with an experienced employee, and formal training programs). As reported in Table 2, the only significant difference between the two sizes of firms was with respect to formal training programs, with small firms providing significantly more formal training. There were no significant differences in terms of the other three types of training. Therefore, H3b was partially supported as the most resource-intensive training was where differences were found.

Hypothesis H3c postulated that regardless of size, firms with a higher trained workforce would be more profitable. We grouped all firms into high versus low training levels based on the median for firms' total scores across all four categories of training. Using a t-test to compare the means on profitability levels, there were no significant differences between profitability of the high versus low users of training ( $p=.742$ ). Therefore, this hypothesis was rejected.

Profitability Correlations - To further examine the impact of these HR quality practices on profitability of the firms within each size group, we ran bivariate correlations for firm profitability separately with each individual practice for the very small and small firms. Table 3 presents the results.

**Table 3: Correlations of Human Resource-related Quality Practices with Profitability as Percent Return on Sales: for Very Small, Small, and All Firms**

Variables	Very Small Firms N = 77	Small Firms N = 53	All Firms N = 130
Employee involvement	-.18	.19	-.09
Employee empowerment	-.13	.19	-.01
Usage of teams	.04	.44**	.17
Effectiveness of teams	.10	.15	.11
Team-based rewards	.09	.15	.10
Use of employee training	.15	.31*	.19*
Moderate and Heavy use of training	.14	.29*	.17+
Use of formal training	.24*	.23	.22**

Note: + =  $p < .10$ , \* =  $p < .05$ , \*\* =  $p < .01$

Results showed some interesting differences. Usage of teams was most helpful to the profitability of small firms, as was the use of training in general. However, training did not prove to be automatically more helpful. In fact, use of formal training, which was considered the most resource-intensive form of training, did not have a significant influence on small firms' profits. In contrast, for the very small firms, only use of formal training was associated with profitability. Implications of these correlations are discussed in the next section.

### **IMPLICATIONS FOR SMALL BUSINESSES**

Some of the key implications for companies relate to which quality practices contribute positively to profitability. The first is team usage in small firms. This implies that in firms employing 50 workers on average, it helped to formally designate work teams and assign tasks. Coordination of tasks was perhaps more difficult if these firms did not use formal work teams. Since our analysis revealed that team usage was not significantly different between VS&SFs, we suggest that small firms be educated regarding the benefits of work teams and encouraged to use them more extensively.

With respect to training, a 1995 US Labor Department study indicated that employees in smaller companies (50-99 workers) received an average of 5.7 hours of training over a six month period. Larger firms (over 500 workers) received 12 hours of training over the same time frame ("Employer-provided worker training", 1998). The Labor data indicates a difference in training levels between large and smaller firms. However, that difference does not continue into the very small versus small firm categories, except with respect to formal training.

However, training did contribute to profitability much more significantly among the small firms. Therefore, small firms have much to gain when they offer training to their employees. It is also noteworthy that very small firms' profitability was higher when their employees received formal training. Accordingly, very small firms should specifically examine their use of formal training whereas small firms should examine their overall training activities. This is particularly relevant given the notion that if employees are worth hiring and keeping, they are worth training ("Why and How of Training," 1998).

Overall, the fact that profitability of the very small and small firms was not significantly different indicates that each group of firms achieved similar results through the use of slightly different practices. The mix of quality practices that firms adopted kept them relatively equal to each other. However, the results of the profitability correlations do suggest that greater emphasis on the use of teams and training would improve the profitability of small firms (obviously dependent on the costs associated with that increased activity).

### **CONCLUSIONS AND FUTURE RESEARCH DIRECTIONS**

This study sought to identify patterns among very small and small firms in the use of selected HR-related quality practices. Analysis of data showed that in general, the overall patterns were not significantly different between the two categories of firms. However, having said that, some interesting observations can be made. Team usage was similar, despite the size differences between the two groups of firms. Further, formal training was used by small firms to a greater extent than their very small counterparts. Finally, profitability (as measured by return on sales) did not significantly vary between those VS&SFs which utilized these quality practices at a higher level vis-à-vis the VS&SFs which utilized them at a lower level.

While the levels of quality practices adopted by VS&SFs have helped them obtain comparable levels of profitability, it is likely that overall improvements in quality practices are possible since firms were tested against each other, and not against an absolute standard of quality. There may also be industry-wide differences in the extent to which these practices can be implemented. For example, in certain industries (communications, finance, etc.), substantially more training is provided than in the retail trades ("Why and How of Training," 1998).

Finally, profitability may not be the only measure of effectiveness of quality practices like empowerment, training, and teams. Rather, service quality (Zeithaml, Parasuraman & Berry, 1990; Berry, 1995) may be a more pertinent criterion. Thus, further research is needed to establish the degree to which quality practices determine firm success, and we offer the following suggestions:

- Develop an overall quality practices index using other common quality practices and compare differences across firm size, age, industry type, etc..
- Compare quality differences among firms relative to levels in competitors.
- Link quality practices with other outcome measures such as sales growth and customer satisfaction.

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