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Effect of Service Climate on Service Quality : Test of a Model Using Structural Equation Modeling

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Abstract

This study builds on the research evidence of the positive influence of employees' perceptions of service climate and service quality on customer satisfaction with service (Parkington & Schneider, 1979; Schneider, Parkington, & Buxton, 1980).

The study tests a model of the relationship between service climate and customer satisfaction using structural equation modeling (SEM) based on the themes identified by Schneider, Wheeler & Cox (1992). It was hypothesized that management practices related to human resources, interpersonal relationships, coordination, and service emphasis will have a positive relationship with employee service behaviors and employee service capability which in turn will have a positive relationship with employee and customer perceptions of service quality. Finally, employee perceptions of service quality will have a positive relationship with customer perceptions of service quality. Data was collected from employees and customers of a State Government agency.

Due to sample size problems, we had to simplify our model by combining the latent variables of human resource practices, interpersonal relationships, coordination, and service emphasis into one variable representing employee perceptions of management practices. Employees' perceptions of management practices were positively related to both employee service behaviors and employee service capability. Employee service behaviors and employee service capabilities had a positive relationship with employee service quality. Only employee service behaviors had a positive relationship with customers' perceptions of service quality.

Introduction

Certain characteristics have been attributed as being unique to service organizations. These characteristics form a continuum and include intangibility of services, simultaneous production and consumption of services, customer involvement, and heterogeneity (Zeithaml, Parsuraman, & Berry, 1995; Bateson, 1977; Bowen & Schneider, 1988).

These attributes of services have important implications for the management of service organizations. The evaluation of the quality of services is based on customer perceptions. Lehtinen & Lehtinen (1982) have proposed "physical quality" (facilities, furniture, odors, wall colors, convenience of location), "corporate quality" (organizations image, reputation), and "interactive quality" (interaction between employees and customers, and customers and customers, in the service delivery process) as three important dimensions in the evaluation of service quality. Finally, comparison between prior expectations of customers and the ability of the organization to meet or exceed these expectations is an important determinant of customer perceptions of quality of service (Churchill & Suprenaut, 1982; Gronroos, 1982; Parsuraman, Zeithaml, & Berry, 1985; Smith & Houston, 1983).

The managerial problem becomes one of managing the physical, corporate, and interactive quality of services and customer expectations of these quality dimensions. Schneider and his colleagues have proposed the concept of "service climate" in the organization as a way of providing a superior quality service (Schneider 1972, 1973, 1990, 1991; Schneider & Bowen, 1985, 1995; Schneider et al. 1980). The focus of this paper is to propose and test a model of factors that influence service climate and the effect they have on customers' perceptions of service quality.

Service Climate – An Introduction

Service climate is defined as members' perceptions of the organizational events, policies, practices and procedures that promote, support, and facilitate a climate where service is expected and rewarded in the organization (Schneider 1990). Managerial procedures, practices, and policies influence the perceptions of employees about the expectations and goals of the management. These might relate to different aspects of organizational functioning that support service like human resources, rewards and recognition systems, interpersonal relations, coordination and planning of services, and so on. To the extent that organizational practices are conducive to offering a high quality service, employees will behave accordingly and provide a high quality service, which will be reflected in customer satisfaction with the services provided by the organization (Schneider et al. 1980; Schneider & Bowen, 1985). These perceptions in turn affect employee behavior (Denison, 1996; Schneider, 1983, 1990). The way employees behave with customers, in turn, affects customers' perceptions of the quality of service.

The following section will review the literature on the employees' perceptions of the service climate in the organization based on managerial practices, procedures and policies and it impact on customers' evaluation of service quality.

Employees' Perceptions of Service Climate

Researchers have investigated a number of variables related to employees' perceptions of service climate, employee behavior, and employees' perceptions of service quality, and their influence on customers' perceptions of service quality. Some of the main conclusions of this research pertinent to this study have been as follows:

1. There is a consistent relationship between employees' and customers' perceptions of service quality. Human resource practices, interpersonal relations, coordination, and emphasis on service have been found to be associated with positive employee and customer service perceptions (Schneider, 1973; Schneider et al. 1980; Schneider & Bowen, 1985; Tornow & Wiley, 1991; Ulrich, Halbrook, Meder, Stucklik, & Thorpe, 1991).

2. Employees perceive top leadership as positively influencing performance and efficiency of operations whereas middle management is seen as having a negative influence on performance and efficiency (Paradise-Tornow, 1991).

3. Tenure has a positive relationship with service quality (Schlesinger & Zornitsky, 1991). There is evidence that with increasing tenure, employees' perception of their service capability increases, possibly due to experience and greater knowledge of customer requirements.

4. There was some evidence that full time employees had greater attachment to the organization, provided better service and had higher ratings of customer satisfaction than part time employees (Ulrich et al. 1991).

Schneider (1973) used an open systems framework of organizations to explain service climate. As per the open systems perspective, organizations affect and are affected by the environment in which they operate (Katz & Kahn, 1968). Schneider (1973) proposed that "the way employees behave towards customers is thought to be the result of the work climate that the bank creates for them; employees, in turn, create the climate that the customers perceive" (p. 248). He found that interpersonal relationships between employees and customers, interpersonal relationships among employees, and waiting time were found to have the strongest correlations with the intention to switch. Summary perceptions of climate as exemplified by the "warm and friendly atmosphere in the bank" and the helpfulness of the employees, as a set had a stronger relationship with switch intentions. The second set of items, consisting of specific perceptions related to the quality of employees, interpersonal relationships among employees, employee satisfaction, and employee treatment of customers was found to have significant but weaker correlations with switching intention and a stronger correlation with the cluster of summary perceptions.

Parkington & Schneider (1979) reason that since employees are in contact with customers on an everyday basis, they are psychologically closer to them. They found that customers' perceptions of service quality were highly correlated with employees' satisfaction with the organization and the quality of service they provide. This study clearly showed a strong relationship between employees' and customers' perceptions of service quality.

Schneider et al. (1980) found that customers' perceptions of service quality were related to employees' perception of service provided to customers. Customer and employee perceptions of many specific dimensions of service issues were also related. Employees tended to view the management as more bureaucratic in orientation and to view themselves as more enthusiastic in orientation towards service. The enthusiastic orientation of the employees had an impact on customer perceptions of employee attitudes and behaviors and branch administration. The researchers also found that employees were able to meaningfully distinguish between descriptions of branch practices and procedures and their feelings of satisfaction, thus addressing the criticism of redundancy of the climate and job satisfaction constructs.

Schneider (1980), in a review of prior research, proposed that management could promote positive employee behavior by instituting policies and procedures that emphasize service to customers. Prior results showed that employees had a very strong desire to provide good service to customers but felt that they were prevented from doing this because of obstacles placed by the system. Employees saw themselves as being more enthusiastic and less bureaucratic in providing service than management. The discrepancy between employees' perceptions and management's perceptions were found to be related to negative psychological consequences for employees (role conflict and ambiguity, dissatisfaction, frustration, and turnover intentions). There was also a relationship between employees' and customers' perceptions of service. Customer satisfaction with service was related to employee reports of an enthusiastic emphasis on service, stress on service by the branch manager, active account retention, training, and adequate equipment and supplies. Employee perception of service emphasis in the bank branch was associated with customer perception of higher quality service, teller courtesy, competence, and positive work attitude, adequate staffing and low turnover, and better branch administration. Thus, a customer service orientation was found to have a positive affect on both employees and customers.

Schneider & Bowen (1985) found that the human resource practices followed in the organization were related to customers' description of employee morale, branch administration, and overall perceptions of service quality. Work facilitation was most consistently related to the customers' perception of the quality of service Customer turnover intentions were strongly related to customer attitudes regarding service quality An interesting finding was that the relationship between employee turnover intention and customer attitudes was stronger than the relationship between customer

switching intention and employee attitudes. Schneider & Bowen (1985) conjectured that customers might make their opinions regarding the quality of service known more readily whereas employee attitudes might be restrained due to organizational requirements.

A number of authors have proposed linking internal operational measures to measures of customer satisfaction (Bolton & Drew, 1994; Kordupleski, Rust, & Zahorik, 1993). Bolton & Drew (1994) propose that linking external customer satisfaction measures to internal operational measures will help to "(a) predict how service changes will affect customer satisfaction and (ultimately) revenues or profits (b) diagnose low customer ratings, or (c) use customer ratings to evaluate the effectiveness of personnel and organizational units" (p. 174). Tornow (1991) in editing a special issue of Human Resource Planning emphasized the necessity of examining the interrelationship between employees and customers, and in establishing human resource practices which are conducive to promoting a service culture and contributing both to employee and customer satisfaction.

Ulrich et al. (1991) in an empirical study of a manufacturing firm (NCR), reported that "The highest quality plants have employees who have much higher ratings of job security, management, NCR performance, cooperation, goals and objectives, and other measures of employee attitudes" (Ulrich et al. 1991, p. 93). Using this methodology the management was able to identify the characteristics of high and low quality plants, the specific management practices conducive to high quality products, and the various stages of quality process (exhibit 3, p. 95). In another study of a transport service organization (Ryder), the researchers found strong and significant correlations between human resource practices and employee satisfaction; employee satisfaction and voluntary turnover rates; and employee satisfaction and worker compensation rates. The studies indicate that human resource practices conducive to creating a service climate increase the satisfaction and attachment of employees and have an affect on customer service and satisfaction.

Tornow & Wiley (1991) in a study at the district level of analysis found that employees' perception of climate within the organization (in terms of management practices, culture for success, work group climate, job satisfaction, degree of personal responsibility, reward for performance, overall satisfaction with company, and a composite of the employee attitude survey) showed the highest correlation with customers' satisfaction with training. Data indicated that employee attitudes and perceptions had a stronger relationship with customer satisfaction with training, the quality of the products, and customer service, than with satisfaction with the organization's product per se Employees' perceptions of reward for performance were significantly related to customers' satisfaction with training, product quality and overall customer satisfaction.

Examining organizational performance, employee attitudes, and customer satisfaction together, the researchers demonstrated that the strongest relationship was between employee attitudes and customer satisfaction; there were moderate relationships between customer satisfaction and organizational performance; and the weakest relationship occurred between employee satisfaction and organizational performance. All three variables were strongly and positively related to each other. Employee perceptions of culture for success were highly correlated with management practices. Employees' perceptions of organizational climate, as exhibited by management practices and culture for success, were highly correlated with customer satisfaction with training. Both customer and employee satisfaction were related to the organizational performance measure of customer retention. The authors concluded that besides customer satisfaction, employee attitudes about management and human resource practices within the organization are important and reflect on the performance of the organization and its ability to retain customers and provide them with high quality service.

Schneider, Wheeler, & Cox (1992) identified service themes using 97 focus groups in panel discussion and profiled themes that were important in creating a service climate within the organization. They identified 33 themes as being important to creating a service climate conducive to delivering a high quality service. These themes were grouped into 6 metathemes of environment, coordination, interpersonal relationships, service, human resources, and other resources (Schneider et al. 1992, p. 708). Data was collected on how frequently the theme was mentioned, the affective response to the theme (favorability rating), and a passion for each theme (arrived at by combining the frequency and favorability rating).

The most "frequently mentioned themes concerned coordination issues (rules, guidelines, and procedures and task related interactions between functional units or levels of management) and service issues (service process and emphasis on service at location)" (p. 709). The most favorable themes were task-related interactions within the work group, co-worker relationships, and products offered. Service themes with the highest correlation to service passion were soliciting and responding to customer opinions, establishing processes for delivering services, and the emphasis placed on service by the larger organization. Non-service themes with the highest correlation with service passion were primarily related to human resources issues (hiring procedures, performance feedback, internal equity of compensation, and training) and the theme of task related interactions between functional units or levels of management. Moderate correlations were observed with the metathemes of environmental issues (organizational characteristics), coordination (planning), human resources (job attitudes, staff quality, and performance appraisal), and other resources (office condition and facilities). In conclusion, creating a climate for service was found to be strongly related to developing human resource practices of selection, training, performance appraisal, and equity of pay. In addition, offering products, designing service processes, and soliciting and responding to customer opinion was seen as essential to having a passion for service. The authors conclude, "because service quality itself is a multifaceted construct, promoting service requires supporting a multifaceted climate in which delivering service quality can occur" (p. 713). Moreover, rather than addressing a particular problem, management has to pay attention to multiple dimensions to address service quality related issues within the organization.

Schneider (1994) proposed that HRM practices have to be focused on providing services to customers. He defined customer focused HRM as "HRM that is targeted on meeting the expectations of customers in specific market segments" (Schneider, 1994, p.64). However, rather than focusing exclusively on HRM practices and falling into a "human resources trap" (Schneider & Bowen, 1995), organizations need to take a holistic view of providing service and act in a fashion such that "all elements of the service system act in coordinated ways to produce service excellence" (Schneider, 1994, p.64). Schneider (1994) concluded that the major contributions of the research on the relationship between employee and customer satisfaction have been (a) to use customer satisfaction as a criterion for evaluating HRM practices; (b) to establish a link between employees' perceptions of service delivery and customer's satisfaction with service; and (c) to use employee data aggregated at the organizational level (branches or departments or units which provide service) in order to examines its relationships with the customer's perception of service.

Schneider & Bowen (1995) reviewed research on management of service organizations and presented an integrated approach to the management of service climate. They propose that management needs to pay attention to the "Boundary Tier" and the "Coordination Tier". The boundary tier is where the customers come in contact with the organization. One important component of the boundary tier is the employees of the organization. The coordination tier is the systems that management creates to provide service to customers. The boundary and the coordination tiers need to be integrated to provide a seamless service to the customer. They define seamless as "the service in all its dimensions and characteristics is delivered without a hitch. It is simultaneously reliable, responsive, competent, courteous, and so forth, and the facilities and tools necessary for it are all put into play smoothly and without glitches, interruptions, or delay" (Schneider & Bowen 1995, p. 8).

Schneider & Bowen (1995) recommend that systems in organizations need to be integrated to provide an experience of seamlessness of services. Management needs to pay attention to multiple facets of service climate rather than relying on single interventions. Since people do things that are more likely to be rewarded, reward systems can be configured to motivate employees to provide quality service. Management needs to emphasize a service orientation as against a production orientation and needs to direct its attention to service oriented behaviors.

The above review of the service climate literature provides substantial evidence to show that managerial practices related to human resources, interpersonal relations, coordination, and an emphasis on service have a positive relationship with employees' behavior and their perceptions of the quality of service they provide. This in turn has a positive influence on customers' perceptions of service quality Based on the above review and the variables identified by Schneider et al. (1992, p. 708), this study will focus on employees' perceptions of service climate based on human resources practices, interpersonal relationships, coordination, service emphasis, employee service behaviors

and employee perceptions of service quality. These in turn should positively affect customers' perceptions of service quality.

Employee Service Capability

Shea & Guzzo (1987a) and Guzzo, Yost, Campbell, & Shea (1993) have proposed group potency as an important and distinct variable in the study of work group effectiveness. Guzzo et al. (1993) define potency as "the collective belief in a group that it can be effective" (p. 87). It is the collective belief of the group that they have the potential to bring about change in their work place. The sense of potency arises from the group's evaluation of the resources present in the group and the organizational conditions under which the group operates. Guzzo et al. (1993) present reasons for considering group potency as a distinct concept from other existing concepts like self, collective, and political efficacy. They presented empirical evidence to show that potency could be reliably measured and groups varied in terms of their potency scores. Shea & Guzzo (1987b) found a significant relationship between potency and customer service effectiveness. Guzzo et al. (1993) proposed that external factors (like the resources provided by the organization in terms of training, materials, information, budget, etc.) and internal factors (experience, knowledge, staffing, etc.) influence group potency.

Employee service capability is analogous to the concept of group potency proposed by Shea & Guzzo (1987a) and Guzzo et al. (1993). It is seen as the collective belief of the employees in their ability to provide service to the customers in an effective manner. Like group potency, employee service capability is seen to arise from the employees' perceptions of service climate based on managerial practices and support. It is hypothesized that the collective belief of the employees in their ability to provide service will positively influence both employees' and customers' perceptions of service quality.

Proposed Hypotheses

Based on the above review, a model based on the following hypotheses will be tested in this study.

Hypothesis 1: Employees' perceptions of service climate based on human resource practices, interpersonal relationships, coordination, and service emphasis will be positively related to employee service behavior and employee service capability.

Hypothesis 2: Employee service behavior and employee service capability will be positively related to employee perceptions of service quality and customer perceptions of service quality.

Hypothesis 3: Employee perceptions of service quality will be positively related to customer perceptions of service quality.

Methodology

This section provides a discussion of the methodology used to test the model. It will cover the research site, the sample and sample size, development of employee and customer questionnaires, pre-testing of the questionnaire, survey administration, response rate, the sample, factors and scales used to measure the factors.

Research Site

The study was undertaken in the Unemployment Insurance (UI) and Job Services (JS) departments of the Employment and Training Division (E&T) of the Department of Labor, Licensing and Regulation (DLLR) of the State of Maryland. The E&T Division has 26 field offices at various locations in the State of Maryland through which services are offered to the people of Maryland. Each field office has a physically separated UI and a JS department. In the present study, data was collected from the employees and customers of UI and JS departments at the branch level.

Sample

The study was carried out in the 26 branches of the organization, which provide direct service to the customers and are in direct contact with the customers. The unit of analysis was the department (UI and JS department) within each branch and data was aggregated to this level. We choose to consider UI and JS as two separate and distinct entities that represent two data points for several reasons. The functions of these departments are different. The funding sources and performance requirements are different for the UI and JS departments of the branch. For example, employees in the UI department had specified time limits within which they are supposed to process each customer (or 'case' as it is referred to in the organizational jargon). The personnel in the two departments are different. Customers who become unemployed go to UI if they want to get unemployment benefits. Once they register for unemployment benefits, they are required to register with the JS department. However, UI is only one source of customers for the job service department. Anyone looking for a job can go to the job services department and register to get help in finding a job.

Employee surveys were administered to all employees of the UI and JS department in the 26 branches. Employees were asked to identify branch and the department where they worked and data was aggregated to the level of the department. This resulted in the final sample size of 52 at the group or department level.

The customer database of UI was used to identify customers who have used the services of the E&T Division during the last year. This database has a record of all customers who have used UI services. Since all customers who use UI are mandated to JS, the same list of customers was used to collect information on JS as well. A common questionnaire containing a UI and a JS section was sent to the customers. They were requested to give their opinions of both departments. Customers were selected depending on (a) geographic location (rural versus urban), (b) type of work (blue collar versus white collar), (c) nature of unemployment (seasonal versus non-seasonal), and (d) services used. Based on these criteria, the agency provided the mailing labels for the customers selected for the study.

Development of Questionnaires

A separate questionnaire was developed for the employees and customers of the organization. The employee questionnaire measured employees' perceptions of service climate related to human resource practices, interpersonal relationships, coordination, service emphasis, service behavior, service capability and service quality. The customer questionnaire measured customers' perceptions of service quality.

Development of Employee Questionnaire

Personal interviews and employee focus groups were conducted with employee and manager groups to identify the salient service climate themes in the organization. Personal interviews were conducted with the heads of the department of Unemployment Insurance and Job Service. The emphasis in the focus groups and interviews was on identifying employee perceptions of the factors that customers thought were important for good service and the factors in the organization that contributed to customer service. Employees were selected based on the location of the field office (urban versus rural areas; white-collar versus blue-collar areas; and seasonal unemployment areas). We tried to obtain a representative sample of employees from both Unemployment Insurance and Job Services. The final questionnaire was designed based on the transcripts of the interviews and prior scales.

Development of Customer Questionnaire

The customer questionnaire was developed based on the variables identified by the customers as important to service quality. Six customer focus groups, semi-structured in format, were conducted. Given the differences in demographics that the organization deals with, focus groups were conducted with white-collar workers (high skill, professional, and technical occupations), blue-collar workers (manufacturing, semi skilled, and unskilled occupations), and workers from rural areas (small business, agricultural, seasonal and/or cyclical occupations). The final questionnaire was designed

based on this content analysis of the transcripts, and on the sequence in which the customers receive service. The final questionnaire had two main sections, one related to UI and the other related to JS.

Pre-testing the Questionnaires

The employee questionnaire was pre-tested using a sample of four field office managers, four field office staff, and one head office staff member. Some unclear items were modified and items related to pay and benefits were deleted at the request of the managers.

The customer questionnaire was first pre-tested first with employees and managers within the organization to remove any ambiguities in the items. The questionnaire was then field tested on seven customers picked from two different field offices. The researcher sat down with the customers; the customers were requested to fill out the questionnaire and to ask questions whenever they were not clear about instructions, items or terms used in the questionnaire. Based on this feedback, the questionnaire was further modified. The final employee and customer questionnaires were approved by the organization before their distribution.

Survey Administration

For the employee surveys, a cover letter was obtained from the head of the agency explaining the reason for the survey and assuring the subjects of confidentiality. To ensure quick distribution of the surveys, the internal mail distribution system of the agency was used. Prepaid reply envelopes were enclosed with the surveys. The surveys went out in the first week of December 1996. A reminder was sent three weeks and eight weeks after the distribution of the original survey.

For the customer survey, the project leader enclosed a cover letter with the survey explaining the reason for the survey and ensuring confidentiality to the customers. An 800 number was given in the cover letter to answer any questions the customers might have regarding the survey. Prepaid reply envelopes were enclosed with the surveys. The customers were requested to respond within two weeks of receiving the survey. We could not send a reminder due to the costs involved in sending another mailing. The surveys were returned directly to the researchers.

Response Rate

A total of 680 employee surveys were mailed out. 290 surveys were returned. Seven respondents did not indicate the office they were responding from and thus their responses could not be included. Complete useable responses were available for 275 employees, thus giving a response rate of 40%, which compares very favorably with other recent studies using a mail survey methodology (for example, Huselid (1995) - 28%; Delery & Doty (1996) - 21%; Snell & Dean (1994) - 31%). To be included in the study, there had to be at least two respondents at the UI and JUS office level. One office had to be dropped due to a single respondent thus bringing the sample size at the group level to 51.

A total of 10,000 customer surveys were mailed out. Responses were obtained from 2,029 customers. Some respondents did not indicate the office they had obtained services from and thus their responses could not be included. This reduced the useable responses to 1755, giving a response rate of 17.55%.

We were not able to compare respondents to non-respondents because we did not have any information about the non-respondents. Since confidentiality was a very big issue with both the employees and customers, we were not able to get any information that would have helped us identify them and obtain data from the organizational database about them. The employee sample can be considered as a representative sample since almost 41% of the employees responded. However, the response rate for customers was only about 17% and very limited demographic information was available from the customers.

Sample Size Issues in Structural Equation Modeling

Sample size was an important issue in this study and influenced the data analysis methodology used. The present study is based on the group level of analysis. The consequences of

aggregation to the group level include the reduction of sample size and lower statistical power. Even though the sample size at the individual level was 275 observations, it was reduced to only 51 after aggregation to the department level.

Some of the problems encountered with smaller sample sizes include: the failure of the iteration procedure to converge; improper solutions (problems of negative estimates of residual variances, also called Heywood cases); failure to reject models which are incompatible with the data; problems of precise estimates of parameters (with a small sample size, the standard errors for the parameter estimates are likely to be large resulting in non-significant parameter estimates); sensitivity of chi-square to sample sizes; problems with the program's estimates of the starting values; and most importantly, large samples are critical for statistical power of the model (rejecting the model if it is wrong). Bentler and Chou (1987) have recommended that the ratio of sample size to number of free parameters should be at least 5:1 under normal and elliptical theory and 10:1 for arbitrary distribution.

Loehlin (1992), based on Monte Carlo studies, recommends that there should be at least three indicators per factor and a sample size of 100. The statistical properties of the goodness of fit indices in SEM depend on large samples. The calculations for goodness of fit indices become more difficult with smaller sample sizes.

MacCallum, Browne and Sugawara (1996) show that as the degrees of freedom increase, the minimum sample size required to obtain reliable estimates of parameters goes down. However, they caution researchers to apply this rule carefully. They point out that the sample size should be greater than the number of parameters being estimated. Moreover, their framework uses non-central chi-square distribution theory, which only holds with sufficiently large sample sizes. Finally, they point out that sample size affects the estimation of parameters and with a small sample size it might not be possible to obtain precise parameter estimates.

Hanges, Nelson and Schneider (1990), based on a Monte Carlo simulation comparing individual and group level data, found that statistical power at the group level of analysis was a function of both the number of groups and the within group sample size. They concluded "the total number of observations can be used to determine statistical power for studies in which the dependent variable is aggregated to a higher level of analysis." (p. 8).

The objective of this study was to examine service climate after controlling for organizational level effects. The final sample size for this study was 51 units. One option was to maximize the ratio of the number of parameters being estimated to the sample size by simplifying the model and reducing the number of parameters to be estimated to the minimum level possible. Two methods suggested for maximizing this ratio are using single indicators for latent variables and pre-specifying the error variance of the observed variables (Bollen, 1989; Hayduk, 1987, 1996).

Bollen (1989) proposes that when a single observed variable is used to represent a latent variable, it should be given the same scale as the observed variable by fixing the value of the path from the latent to the observed variable to 1.0. Hayduk (1996) recommends choosing the strongest indicator of the factor and setting the path from the factor to the variable as one. Setting the path from the latent to the observed variable to 1.0 not only links the specific indicator to the specific concept, it also equates the scale of the latent and the observed variable. Using a single observed variable as a measure of the latent variable implies that we are making an assumption that the latent variable is unidimensional and is measured comprehensively by the observed variable (Hayduk, 1996). This approach has been used by other researchers, for example, Frone, Russell & Cooper (1992, 1994) and Frone, Yardley & Markel (1997).

Bollen (1989) has also shown that reliability estimates of the observed variable can be used to estimate error variance, which can then be incorporated into the model. Hayduk (1996) recommends that one of the ways of estimating the error variance is by using the formula:

Variance of error = Variance of the indicator (1-Reliability of the indicator)

Variance of the error is an estimation of the unreliability in the measurement of the observed variable. It can also be thought of as the gap or the misfit between the latent and the observed variable Here (1-reliability of the indicator) is the proportion of the variance in the indicator due to

measurement error, which is multiplied by the true variance of the indicator to arrive at the value of the error variance for the indicator (Hayduk, 1996).

The SEM model with single indicators is given in Figure 1. Table 1 gives the calculations for the ratio of the number of parameters to be estimated to sample size and power for the models in the study. The ratio of parameters to sample size for the model was 1.89. The models suffer from a problem of low power due to sample size.

Table 1: Estimation of Degrees of Freedom and Power for the Proposed Models

		Parameters to be estimated						
Model No. (1)	No. of pieces of information available (2)	Variance (3)	Co-variance (4)	Paths (5)	Total (6)	DF (7)	Ratio of parameters to sample size (8)	Power (9)
Figure 1	(8*9)/2 = 36	8	6	13	27	9	1:1.89	0.10478

(2) Calculated using the formula:
[Number of measured variables * (Number of measured variables + 1)]*1/2.

(3) This includes the variances calculated for Errors, Disturbance, and exogenous factors.

(4) Covariance's were estimated for exogenous factors.

(5) This includes the paths estimated from latent factors to indicators and between latent factors.

(6) This is the sum of (3), (4) and (5).

(7) This is estimated by subtracting total number of parameters to be estimated from the number of pieces of information available.

(8) This is the ratio of (6) to the sample size of 51

(9) This was estimated using the procedure recommended by MacCallum et al. (1996, p. 148-149)

Factors and Measures

The factors used in this study are employees' perceptions of service climate related to human resource practices, interpersonal relationships, coordination, service emphasis, employee service behavior, employee service capability, employee service quality and customer service quality. The data gathered from the employees and customers was aggregated to the department level to test the proposed model. Schneider (1990) recommended that the items used in the survey should be congruent with the level to which the data will be aggregated so as not to elicit global descriptions from an overall organizational perspective. In keeping with that recommendation, the items were worded to make the respondents think about the "department level" while responding. The specific items used to measure the factors in the present study were based on prior scales and the transcripts of the employee and customer focus groups and reflected the departmental level of analysis. For employee service capability, items were based on the items presented by Guzzo et al. (1993). Since the items have been modified, the scale reliabilities from other studies were not generalizable to this study. All items were measured on a five point, 1 to 5 scale where "1" = Very Inaccurate, "2" = Inaccurate, "3" = Neither Inaccurate Nor Accurate, "4" = Accurate, "5" = Very Accurate. The following section presents the scales used in the questionnaire.

The exploratory factor analysis was conducted using principal components analysis with varimax rotation with the individual level data. This step is consistent with the structural equation modeling literature (Byrne. 1994). Since we were interested in the highest common variance with the latent variable, only the first factor in the factor analysis was selected for all further analysis. In order to select items that were the strongest indicators of the factor, a cutoff for item factor loading of 0.60 was used.

Human Resource Practices

This scale measures the employee's perceptions of the human resource practices followed by the management in terms of recognition, performance appraisal and feedback, job satisfaction and job stress, job assignment, training and employee development, and compensation. This was a complex,

multidimensional scale. It was designed to capture employees' perceptions of a number of human resource practices. Some of the items from this scale are "Managers in our office recognize employees for providing good service to customers"; "Employees in our office are satisfied with their jobs', Performance appraisal includes how well the employees interact with the customers". The significant items for this factor represented distinct concepts of employee recognition, job stress, job satisfaction, performance appraisal, and employee assignment. These represent separate concepts in the human resource management literature. Bollen (1989) defines latent variables as "unidimensional concepts in their purest form" (p. 11). Clearly the human resource practices latent variable was a multidimensional as it was measured in the present study. This study was conceptualized based on the earlier work by Schneider et al. (1992). In their study, the authors had identified "themes" and then grouped these themes under "metathemes". Themes represented a lower level of grouping and metathemes represented a higher (or a meta) level of classification of themes. The latent variable Human Resource Practices was conceptualized to be a higher level grouping which would constitute these different specific human resource practice themes. If interpreted in this sense, the different concepts that have coalesced under one factor make sense and can be accepted to represent the latent variable of Human Resource Practices. Three factors were extracted. A total of seven items loaded on the first factor (eigenvalue = 5.028 with 38.67% of the variance explained). The alpha reliability for this factor was 0.8568.

Interpersonal Relations

The Interpersonal Relations scale was designed to measure the treatment of employees by the managers and supervisors (respect, trust) and the relationship between employees (Kozlowski & Doherty, 1989). Most of the items used in this scale were modified from Kozlowski & Doherty (1989). Some of the items from this scale are "Co-workers in our office work as a team"; "The co-workers in our office discuss how we can jointly improve customer service". Only one factor was extracted (eigenvalue 4.410 with 55.13% of the variance explained). Six items loaded on the factor with an alpha reliability of 0.8802. The items in the factor represented interpersonal relationships among the employees and between the employees and management in the office.

Coordination

The Coordination scale was designed to measure the extent of planning of work activities and communication and coordination of activities within the branch and between different work groups in the organization to facilitate optimal performance (Sells & James, 1988). Some of the sources for the items include Payne & Pheysey (1971), and Schneider & Hall (1972). Some of the items from this scale are "Work in our office is well planned and organized"; People from the various Programs in E&T work together to provide good service to customers". Three factors were extracted. Five items loaded on the first factor (eigenvalue = 4.302 with 35.846% of the variance explained). The alpha reliability for this factor was 0.8524. The items in the factor represented coordination and planning of the work done in the office.

Service Emphasis

The Service Emphasis scale measures the extent to which employees perceive an emphasis on service as demonstrated by the behavior of management in making available enough resources for providing service to customers, stressing providing service to customers, and seeking employee ideas for improving service. Some of the sources for the items include Moeller & Schneider (1986), and Parkington & Schneider (1979). Some of the items from this scale are "Management in our office places a great deal of emphasis on providing high quality customer service"; "Management in our office commits the necessary resources for providing quality service to customers". Two factors were extracted. Six items loaded on the first factor (eigenvalue = 5.404 with 49.127% of the variance explained). The alpha reliability for this factor was 0.8954. The items in the factor represented the emphasis placed on service by the management in the office.

Employee Service Behaviors

The Employee Service behaviors scale measures the behavior of the employees towards their customer in the process of providing services to the customers (Schneider, 1973). Some of the items in this scale came from employee focus groups and some were modified from Schneider

(1973). Some of the items from this scale are "Employees are courteous to customers"; "Employees show concern for the customers situation". Two factors were extracted. Fourteen items loaded on the first factor (eigenvalue = 11.460 with 60.314% of the variance explained). The alpha reliability for this factor was 0.9678. The items in the factor represented employee perceptions of the service they provide to the customers who visit the office.

Employee Service Capability

The Employee Service Capability is the collective belief of the employees in their ability to provide service to the customers in an effective manner. Some of the items from this scale are "The support provided by the management in our office increases our capability to provide good service", "The coordination between various Programs in E&T increases our capability to provide good service to customers". Only one factor was extracted (eigenvalue 1.973 with 39.456% of the variance explained). Four items loaded on the factor with an alpha reliability of 0.6454. The items in the factor represented employee perceptions of how management practices increase their capability to provide service to the customers who visit the offices.

Employee Service Quality

The Employee Service Quality scale was designed to measure employees' evaluation of the quality of service they provide to their customers. Some of the items from this scale are "In comparison to other offices, our office provides superior customer service"; "Our Program provides excellent customer service". Only one factor was extracted (eigenvalue 2.555 with 63.869% of the variance explained). Four items loaded on the factor with an alpha reliability of 0.8781. The items in the factor represented employee perceptions of the quality of service they provide to their customers.

Customer Service Quality

The Customer Service Quality scale was designed to measure the customers' evaluation of the quality of service they receive from the organization. Some of the items from this scale are "Overall rating of UI staff"; "Overall performance of JS staff". Only one factor was extracted (eigenvalue 2.793 with 69.820% of the variance explained). Four items loaded on the factor with an alpha reliability of 0.8092.

Estimating Within-Group Interrater Reliability to Statistically Justify Aggregation

Within group interrater reliability procedures recommended by James, Demarree & Wolf, (1984, 1993) was used to justify aggregation to a group level. The index is based on the extent to which the individuals within a setting agree on items compared to agreement that would be expected by chance. The values of r_{wg} vary between 0 and 1 with a high value indicating agreement among raters and a low value indicating a lack of agreement among raters. The interrater reliability indices for employees and customers are given in Table 2. The interrater reliability indices for employee data were sufficiently large to justify aggregation. The customer data had a low interrater reliability index. The variance in customer data was very large. This indicates that customers have widely varying perceptions of the quality of service they receive. Since there were only 51 data points, we could not afford to lose any data points and hence data was aggregated while accepting this limitation. It was recognized that this would be reflected in the further data analysis in terms of the reliability of parameter estimates.

Table 2: Scale Reliability and Interrater Reliability (individual level data)

Factor	No. of Items	Alpha	Average r_{wg}
EHRP	7	0.8568	0.7077
EIPR	6	0.8802	0.9278
ECOR	5	0.8524	0.6847
ESEM	6	0.8954	0.8394
ESB	14	0.9678	0.9458
ESCA	4	0.6454	0.6729
ESQA	4	0.8092	0.7784
CSQA	4	0.8781	0.3767

The following abbreviations will be used in the rest of the paper:
EHRP = Human Resource practices
EIPR = Interpersonal relations
ECOR = Coordination
ESEM = Service Emphasis
ESB = Employee Service Behavior
ESCA = Employee Service Capability
ESQA = Employee Service Quality
CSQA = Customer Service Quality

Estimating the Measurement Model for the Proposed Model

The error variances used in the measurement model were estimated using the formula given by:

Variance of error = Variance of the indicator (1-Reliability of the indicator)

Because we are using data aggregated to the group level in the analysis, the calculations for the variances and the reliabilities were based on the aggregated data. This was done to ensure that the unit of analysis was consistent with the covariance matrix being analyzed. Table 3 gives the calculations for the error variances used in hypothesis testing.

Table 3: Estimation of the Variance of the Error Terms (group level data)

Latent Variable	Reliability of observed variable	(1-Reliability of observed variable)	Variance of observed variable	Variance of error
1. EHRP	0.8339	0.1661	0.2246	0.0373
2. EIPR	0.8974	0.1026	0.4222	0.0433
3. ECOR	0.9014	0.0986	0.3626	0.0358
4. ESEM	0.9182	0.0818	0.3079	0.0252
5. ESB	0.9728	0.0272	0.1592	0.0043
6. ESCA	0.6128	0.3872	0.2164	0.0838
7. ESQA	0.8420	0.1580	0.2315	0.0366
8 CSQA	0.9376	0.0624	0.7145	0.0446

Testing the Proposed Structural Model

The main focus of this study was testing the structural model. The structural model given by Figures 1 was tested. The paths between the latent and the observed variables were fixed to 1.0 and the error variances were fixed at values given in Table 3. The structural equation modeling software used for the analysis was EQS/Windows Version 5.4 (Bentler & Wu, 1996). Table 4 gives the correlation matrix used in the hypothesis testing along with the means, standard deviations and sample size for each variable.

Table 4: Correlation Matrix for the Observed Variables

Latent Variable	1. EHRP	2. EIPR	3. ECOR	4. ESEM	5. ESCB	6. ESCA	7. ESQA	8. CSQA
1. EHRP	51							
2. EIPR	0.845	52						
3. ECOR	0.733	0.826	52					
4. ESEM	0.789	0.857	0.802	52				
5. ESB	0.590	0.517	0.403	0.515	51			
6. ESCA	0.680	0.664	0.709	0.732	0.437	52		
7. ESQA	0.603	0.669	0.661	0.698	0.747	0.610	52	
8 CSQA	0.355	0.252	0.314	0.359	0.397	0.438	0.306	52
Mean	3.4014	3.5362	3.5788	3.9370	4.0346	3.3672	3.8321	7.8589
S. D.	0.4739	0.6498	0.6022	0.5549	0.3990	0.4652	0.4812	0.8453

The numbers on the diagonal indicate the sample size.
All correlations are significant at 0.05 level except for the correlation between CSQA and EIPR (0.252) that is significant at the 0.1 level.

There were three problems encountered with running the model. The first two were related to the sample size. One was the negative estimation of residual variance (disturbance) associated with the latent variable of employee perceptions of service capability (Heywocd case). The second was large standard errors for the estimates of parameters. The third problem was the high intercorrelation among the latent variables of human resource practices, interpersonal relationships, coordination, and service emphasis. It was decided to drop the human resources variable since it was a multidimensional variable (as discussed before) and had high intercorrelations with other management practices latent variables.

The next run of the model was carried out after dropping the human resource practices factor and allowing the factors of interpersonal relationships, coordination, and service emphasis to covary. This analysis again had the problem of the Heywood case associated with the disturbance of the latent variable of employee service capability; large standard errors of parameter estimates; high intercorrelations between the latent variables of interpersonal relationships, coordination, and service emphasis; and the fit indices showing values greater than one.

It was clear that given the number of parameters to be estimated and the small sample size, it would be very difficult to get reliable estimates. Therefore, it was decided to further simplify the model. The high intercorrelations among the latent variables of human resource practices, interpersonal relationships, coordination, and service emphasis suggested that the employees were not differentiating among these dimensions in the context in which they were working. It would seem that in this organization the employees perceived their environment as a gestalt rather than as distinct dimensions identified by the researchers. Employee perceptions of their context as a gestalt and not in terms of distinct dimensions are not unusual. Sims & LaFollette (1975) and Drexler (1977) have reported similar findings. Both these papers combined variables because of high intercorrelations.

The simplified model was thus obtained by combining the factors representing the employees' perceptions of service climate into a single factor. This model is given in Figure 2. The calculations for the estimation of the degrees of freedom and power for the proposed model are given in Table 5. The ratio of parameters to sample size for this model was 4.25. This model comes closest to the recommendation for the ratio between the parameters to be estimated and sample size. This model also suffers from problems of low power due to sample size.

Table 5: Estimation of Degrees of Freedom and Power for the Alternative Model

		Parameters to be estimated						
Model No. (1)	No. of pieces of information available (2)	Variance (3)	Co-variance (4)	Paths (5)	Total (6)	DF (7)	Ratio of parameters to sample size (8)	Power (9)
Figure 2	(5*6)/2 = 15	5	0	7	12	3	1:4.25	0.085721

(2) Calculated using the formula:
[Number of measured variables * (Number of measured variables + 1)]*1/2.
(3) This includes the variances calculated for Errors, Disturbance, and exogenous factors.
(4) Covariances were estimated for exogenous factors.
(5) This includes the paths estimated from latent factors to indicators and between latent factors.
(6) This is the sum of (3), (4), and (5)
(7) This is estimated by subtracting total number of parameters to be estimated from the number of pieces of information available.
(8) This is the ratio of (6) to the sample size of 51
(9) This was estimated using the procedure recommended by MacCallum et al. (1996).

Exploratory Factor Analysis for the Simplified Model

A factor analysis was done by combining the items for human resource practices, interpersonal relationships, coordination, and service emphasis. The factor analysis resulted in extraction of 9 factors. The first factor had an eigenvalue of 17.546, explained 39.878% of the variance and had an alpha reliability of 0.9405. It included items related to the behavior of managers and supervisors. The underlying theme in this factor was management practices, specifically the behavior of management in the branch offices. The common underlying latent variable was labeled Employee Perceptions of Management Practices. The second factor had an eigenvalue of 8.215 and explained 8.215% of the variance. This factor included items that referred to the Central office and the relationship between the Central and the local office. The underlying theme in this factor seemed to be employee perceptions of Central office staff. Each of the remaining factors had one or two items loading on it and explained lower percentages of variance. Due to our focus on management practices at the local offices and the necessity to minimize the number of parameters to be estimated, only the first factor was used for all further analysis.

Estimation of the Alternative Measurement Model

Table 6 gives the calculations for the error variances used in hypothesis testing. Table 7 gives the correlation matrix used in the hypothesis testing along with the means, standard deviations and sample size for each variable of the alternative model. Again due to loss of one case, a sample size of 51 was used in testing the structural model.

Table 6: Estimation of the Variance of the Error Terms for the Simplified Model

Latent Variable	Reliability of observed variable	(1-Reliability of observed variable)	Variance of observed variable	Variance of error
1. EMGP	0.9528	0.0472	0.3587	0.0169
2. ESB	0.9728	0.0272	0.1592	0.0043
3. ESCA	0.6128	0.3872	0.2164	0.0838
4. ESQA	0.8420	0.1580	0.2315	0.0366
5 CSQA	0.9376	0.0624	0.7145	0.0446

EMGP = Employees' Perceptions of Management Practices
ESB = Employee Service Behavior
ESCA = Employee Service Capability
ESQA = Employee Service Quality
CSQA = Customer Service Quality

Table 7: Correlation Matrix for the Observed Variables of the Simplified Model

Latent Variable	Mean	S. D.	1. EMGP	2. ESB	3. ESCA	4. ESQA	5. CSQA
1. EMGP	3.7699	0.5989	52				
2. ESB	4.0346	0.3990	0.439	51			
3. ESCA	3.3672	0.4652	0.702	0.437	52		
4. ESQA	3.8321	0.4812	0.659	0.747	0.610	52	
5 CSQA	7.8589	0.8453	0.296	0.397	0.438	0.306	52

The numbers on the diagonal indicate the sample size.
All correlations are significant at 0.05 level.

Testing the Simplified Structural Model

The paths between the latent and the observed variables were fixed to one and the error variances were fixed at values given in Table 6. The structural equation model given in Figure 2 was run using the correlation matrix given in Table 7.

No problems were encountered and the model converged in 10 iterations. The fit indices for this model were all over 0.95 and the chi-square ($\chi 2 = 4.708$, df = 3, p = 0.194) was not significant, thereby indicating that the model fit the data (Byrne, 1994). The Wald statistic suggested that a major source of misfit was the path between employee perceptions of service quality and customer perceptions of service quality. The decision was made to drop this path and rerun the model. The model, after deleting the path, converged in 6 iterations. There were no error messages. The fit indices for this model were over 0.95 and the chi-square ($\chi 2 = 6.6$, df = 4, p = 0.158) was not significant, thereby indicating that the model fit the data.

The average off-diagonal absolute value of the standardized residual was 0.0468, which indicated a good fit of the model to the data. The residuals were symmetrically distributed and centered on zero. The frequency distribution of the distribution of the residual showed that 86.67% of the residuals fell between –0.10 and +0.10. The largest off-diagonal value (0.162) was between employee perceptions of service capability and customer perceptions of service quality. All this information shows that the global fit of the model to the data was very good with some amount of misfit in specific parts of the model. The standardized solution for this model is given in Table 8.

Table 8: Standardized Solution for the Simplified Structural Model

Latent Variable	1. EMGP	2. ESB	3. ESCA	4. ESQA	5. CSQA
1. EMGP		0.464***	0.909***		
2. ESB				0.602***	0.308***
3. ESCA				0.510*	0.229
4. ESQA					
5 CSQA					

* = p < 0.05
** = p < 0.01
*** = p < 0.001
Selected Fit indices for the model are:
Comparative Fit Index (CFI) = 0.977
Bollen (IFI) Fit Index = 0.978
Root Mean Square Error Of Approximation (RMSEA) = 0.116
90% Confidence Interval Of RMSEA (0.000, 0.261)

Testing of Hypothesis for the Simplified Model

The first and the second hypotheses were modified for testing the simplified model. The original hypothesis proposed that the paths between employees' perceptions of human resource practices, interpersonal relationships, coordination, and service emphasis will have a positive affect on employee service behavior and employee service capability. The alternative hypothesis proposed

that employee perceptions of management practices will have a positive affect on employee service behavior and employee service capability. The rest of the hypotheses were the same as before.

Hypothesis 1 proposed that employee perceptions of management practices would have a positive impact on employee service behavior and service capability. These two paths were positive and significant at $p<0.001$ level. The coefficient for the path between employee perceptions of management practices to employee service capability was almost twice the coefficient for the path between employee perceptions of management practices to employee service behavior. This indicated that management practices had a strong impact on employee's perceptions of their capability to provide services. This hypothesis was supported.

Hypothesis 2 proposed that employee service behavior and employee service capability would have a positive impact on employee service quality. The path between the latent variables of employee service behavior and employee service quality was positive and significant at $p<0.001$ level. The path between the latent variables of employee service capability and employee service quality was positive and significant at $p<0.05$ level. The size of the coefficients for employee service behavior was slightly larger than employee service capability, thereby indicating that employee service behavior has a slightly larger impact than employee service capability on employee service quality. This hypothesis was supported.

Hypothesis 3 proposed that employee service behavior, employee service capability and employee service quality would have a positive impact on customer perceptions of service quality. The path between the latent variables of employee service behavior was positive and significant to the customer perceptions of service quality ($p<0.001$). The path between employee service capability and customer service quality was not significant. The path between employee service quality and customer service quality had to be deleted to improve the fit of the model. This hypothesis was partially supported.

In summary, employees' perceptions of management practices were positively related to both employee service behavior and employee service capability. Employee service behaviors and employee service capabilities had a positive relationship with employee service quality. Employee service behaviors had a positive relationship with customers' perceptions of service quality. Other relationships in the model were not supported. These results have to be interpreted with caution given the sample size and issues of power as discussed above.

Discussion of the Findings

Examining the results of SEM, employees' perceptions of management practices had a significant and positive affect on both employee service behaviors and service capability. From the customer's perspective, only employee service behaviors were found to be important in evaluating service quality, whereas from the employee's perspective both their service behaviors and service capability were found to be important in evaluating service quality.

An important component of the customers' evaluation of service quality is the interactive aspects of the service process (besides the physical and reputational aspects that were not examined in this study). Customers form their perceptions about the service climate of the organization based on their interactions with the employees and how the employees behave towards them during the service delivery process. Customers are not in a position to directly assess the service climate of an organization. Therefore, it makes sense that customers would consider only employee service behaviors in their evaluations of the quality of services. Employee service capability would be reflected in the way the employees treat their customers.

The correlations between employees' and customers' perceptions of service quality were low, but significant. The lack of significant path coefficient could be due to the small sample size. Another reason could be the lack of agreement on service quality levels by the customers. The interrater reliability for customers' and employees' perceptions of service quality was 0.3767 and 0.7784 respectively. This means that there is a wide disparity in the assessment of service quality by the customers. It would seem that the employees have a higher evaluation of the quality of service they provide than the customers. The customers, on the other hand, vary widely in their ratings of the service quality levels. Another possible reason is the nature of the services provided by this

organization. All the customers who come to collect unemployement insurance or to try to find a job might not leave with positive outcomes. Since these customers are already distressed due to their condition, the outcome in terms of getting the unemployment check or a job might be assigned a greater weight in the evaluation of service quality than other attributes of the organization. There is only anecdotal evidence to support this explanation. When asked about how the customers evaluate the quality of services, the employees repeatedly pointed out that the customers did not want to be in their offices. The only thing that mattered to the customers was to get their cheque or to get a job reference and leave as quickly as possible.

The results related to employees' perceptions of service capability are consistent with Guzzo et al. (1993). The results indicate that employees' perceptions of service climate has a positive impact on employees' perceptions of their capability to provide service, which in turn has a positive impact on the evaluation of their service quality. Employees are in a better position to observe and evaluate the service climate within an organization and to evaluate if the service climate facilitates and increases their capabilities to provide a quality service to their customers. The employees' evaluation of their service capability will be an important factor in the belief about their effectiveness, which in this case are their perceptions of the quality of service they provide to the customers.

Limitations of the Study

This study has a number of limitations. Structural equation modeling requires a large sample size. The sample size in this study was small in relation to the complexity of the model that was tested. This resulted in significant beta coefficients for only the strongest relationships to the detriment of other relationships. The power of the test was also low due to the sample size.

The measurement of some of the variables needs to be improved. The measurement of customer service quality was problematic. There was a lot of missing data for the customer responses for the quality of services of JS department.

The conceptualization and measurement of employees' perceptions of service capability need to be improved and further developed. Given the results of this study, this is a promising variable which had relationships with other variables examined in this study.

Also, the data from employees and customers were largely self-report data. All variables have problems of social desirability bias and single method bias. However, some of the employee variables (service behaviors, service capability and service quality) were modeled as being related to customer variables. Hence these employee variables were validated and supported by the customer data.

This study does not meet the criteria for causality since the data was cross-sectional in nature. The models examined are two of the possible models from an infinite number of models. Schmit & Allscheid (1995) have proposed another possible model. We assumed a certain direction of relationships but the arrows can easily point in the other direction.

This study was done at the department level with the data aggregated to that level. We cannot make any conclusions for the individual level since the effects at individual and group level are likely to be different.

Contributions and Future Research

This research makes a substantial methodological contribution to the study of service climates in organization. Structural equation modeling has not been widely used in testing service climate based models. We could only find one study by Schmit & Allscheid (1995) which has used structural equation modeling as a data analysis technique.

This study was carried out in a public sector organization. This study adds to the growing body of evidence related to the importance and positive effects of service climate for the management of service organizations

Employees' perception of service capabilities is a promising new variable. This variable exhibited meaningful relationships with other variables in the model. The conceptualization and

measurement of employees' perceptions of service capability need to be improved and further developed. The role of employee service capability needs to be examined further.

Human resource practices was a multidimensional variable in this study. A lot has been written about the criticality of human resource practices. The different dimensions of this variable need to be examined further to determine how the relationships between various human resource practices contribute to service climate.

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Figure 1: SEM Model with Single Indicators

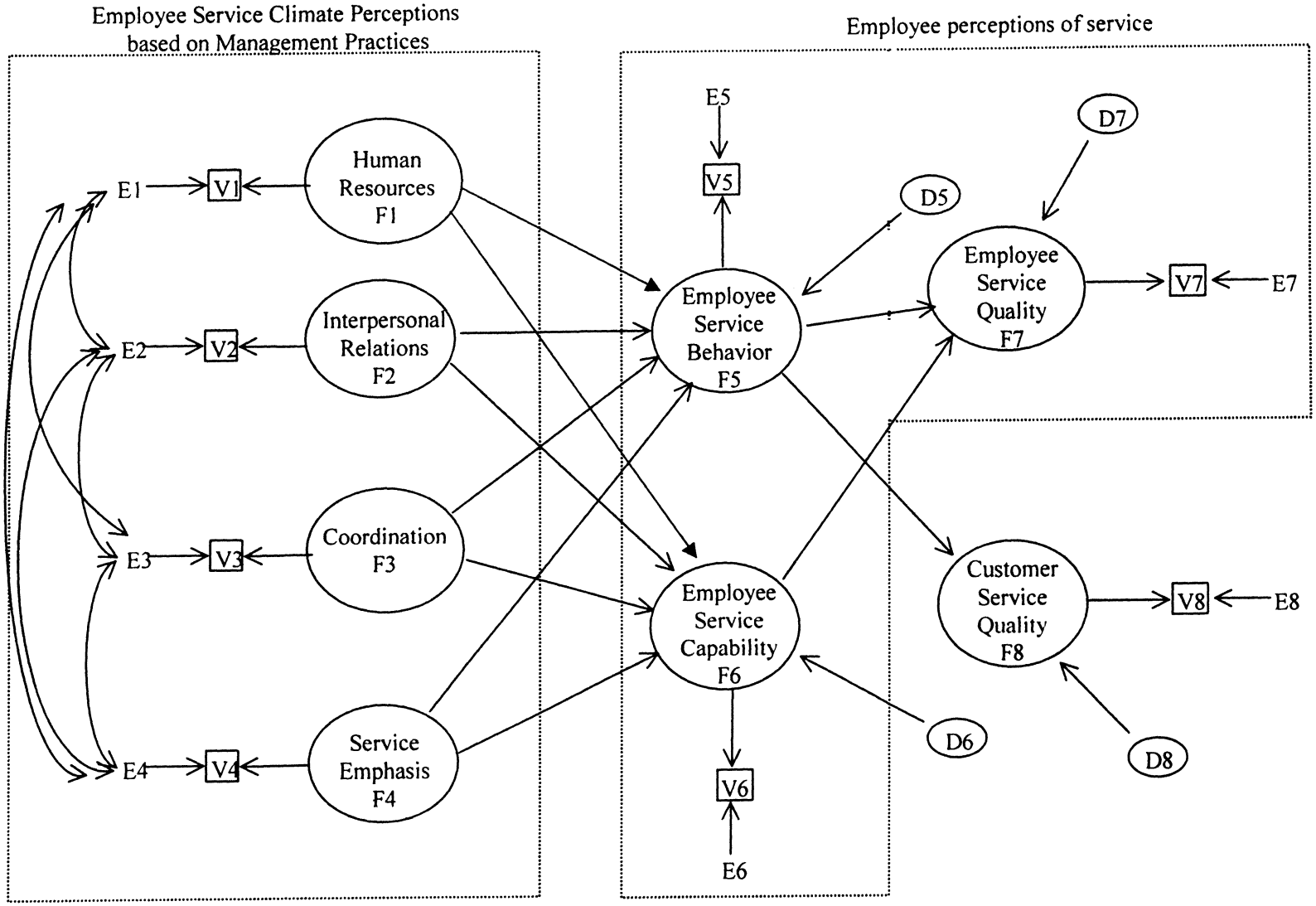

Figure 2: Simplified Model