The effects of service climate and the effective leadership behaviour of supervisors on frontline employee service quality: A multi-level analysis

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A supervisor’s behaviour may not be the only factor that determines the performance of team members (Kerr & Jermier, 1978). Taking this postulation as a basis, we formulated a model to describe how service climate moderates the effects of the leadership behaviour of supervisors. When the organization and working environment are not conducive to providing a good service to colleagues and customers, the supervisor’s leadership behaviour makes an important difference. However, when the service climate is good, a supervisor’s leadership behaviour makes no substantial difference. This hypothesis was supported in an examination of the service quality of 511 frontline service providers as sampled from 55 work groups in 6 service organizations. The employee service quality was low when both the service climate and the supervisor’s leadership behaviour were lacking. However, when the service climate was unfavourable, effective leadership behaviour played a compensatory role in maintaining performance standards towards external customers. When the leadership was ineffective, a favourable service climate nullified the negative effect on service quality to internal customers.

In today’s economy, the success of a business largely depends on the quality of service provided to its customers (Berry, 1995; Gutek, 1995; Zeithaml & Bitner, 1996). Sasser and Arbeit (1976) distinguished between the service that is provided to internal and external customers, and argued that both are equally important. Quality service to
internal customers results in empowered and happy colleagues who are likely to carry out their own work more effectively (Azzolini & Shillaber, 1993). Quality service to external customers brings customer satisfaction and loyalty (Rogelberg, Barnes-Farrell, & Creamer, 1999), which will in turn result in repeat business (Kotler, 1999). Hurley (1998) suggests that employees with whom customers interact directly should act proactively and exercise discretion as to how they deliver service quality to satisfy or even surprise customers. It is therefore important to understand what drives good service. According to past research, two antecedents to the work output of employees are service climate (e.g. Schneider, White, & Paul, 1998) and effective leadership of direct supervisors (e.g. Bettencourt & Brown, 1997; Deluga, 1994; Podsakoff, MacKenzie, Moorman, & Fetter, 1990).

Although service climate and effective leadership behaviour have been found to have a significant impact on employee service quality, little work has been undertaken to integrate these two conceptually related constructs in the same study. In this paper, we examine the relative contribution of service climate and effective leadership behaviour to employee service quality, and the interaction effect of these two independent variables on the outcome variable. The interaction effect is important, given the literature on the substitutes of leadership model (Kerr & Jermier, 1978). In addition, we note the importance of conceptualizing service climate and effective leadership behaviour as group-level variables, and the need to look at their influence on outcome variables beyond the individual level (e.g. Schneider et al., 1998; Strutton, Pelton, & Lumpkin, 1993; Williams, Podsakoff, & Huber, 1992; Yammarino & Dubinsky, 1992, 1994). Although service climate and effective leadership behaviour can best be conceptualized as group-level variables (Ehrhart, 2004; Schneider et al., 1998), to the best of our knowledge, no study has so far examined the direct and interaction effects of these two constructs at multiple levels. This gap in the literature motivates the present study.

This study plans to make the following contributions. First, we formulate a moderating model that predicts the interaction effects between service climate and effective leadership behaviour on employee service quality. This will contribute to an ongoing discussion on the substitutes of leadership model of Kerr and Jermier (1978). Second, in response to the call for a multi-level approach, we test the model at both the individual and group levels. Third, whereas most studies on these two potential antecedents to employee service quality have been conducted in North America and Europe, this study considers service climate and effective leadership behaviour in a Chinese society. As customer satisfaction and service quality are relatively new to many Chinese workers, data from this population will be useful for the research community in developing and refining theories for application beyond cultural boundaries. In the following sections, we briefly survey the literature on the relationships between service climate, leadership behaviour and employee service quality, and then move on to a description and test of the moderating model at the group level.

Impact of supervisor’s effective leadership behaviour on service quality
The literature abounds with actions that supervisors can undertake to be effective leaders. These actions can be crudely organized into three clusters: task-oriented actions (sometimes called performance or initiating structure), people-oriented actions (sometimes called maintenance or consideration) and ethical actions (sometimes called moral character). The first two have been discussed extensively by earlier researchers such as Blake and Mouton (1978), Fleishman (1967) and Misumi
(1985). Some examples of performance actions are making timely decisions, motivating employees, giving directions, drawing up plans and meeting deadlines. In a service setting, effective supervisors influence and encourage the service behaviour of employees by setting targets for their frontline subordinates. They empower, inspire, reward and serve as role models so that their frontline subordinates understand how to deliver the best service. Maintenance actions include respecting the decisions of subordinates, resolving conflicts, listening to the views of subordinates, helping subordinates to achieve organizational and sometimes personal goals and being supportive when subordinates encounter work problems (e.g. Schaubroeck & Fink, 1998). Moral character - or ethical leadership - has recently attracted the attention of researchers (e.g. Emler & Cook, 2001; Greenleaf, Frick, & Spears, 1996; Kanungo & Mendonca, 1996; Ling & Fang, 1995; Srivastva, 1988), and can be linked to transformational leadership (Podsakoff et al., 1990; Turner, Barling, Epitropaki, Butcher, & Milner, 2002). Moral character includes the supervisor’s fairness (Bettencourt & Brown, 1997) and trust-building behaviour (Deluga, 1994). Good supervisors act in an impartial and non-favouring manner and do not abuse their power for personal benefits. Numerous studies have demonstrated that such effective leadership behaviour is associated with the quality of work of subordinates in service organizations (e.g. Bettencourt & Brown, 1997; Deluga, 1994; Pillai, Schriesheim, & Williams, 1999; Podsakoff et al., 1990; Schaubroeck & Fink, 1998). Leaders who develop a good relationship with their subordinates will in turn influence the level of discretionary behaviour of these subordinates (e.g. Settoon, Bennett, & Liden, 1996). In a field experiment, Lam and Schaubroeck (2000) found that using credible and influential people as service quality leaders could enhance the positive attitudes of bank tellers towards service quality initiatives, which result in a more favourable customer rating of service. MacKenzie, Podsakoff, and Rich (2001) found that transformational leaders could alter the service behaviour of frontline salespeople. Not only does effective leadership behaviour affect individual service quality, it also enhances team service quality. For example, supervisors’ level of ‘servant leadership’ (Greenleaf et al., 1996) is associated with unit-level organizational citizenship behaviour in 249 grocery store departments (Ehrhart, 2004). Furthermore, proactive, considerate and charismatic store managers have been found to significantly improve the objective business performance of the supermarkets that they run (Koene, Vogelaar, & Soeters, 2002). A critical mass of colleagues delivering good service has a modelling effect on others. Thus, the supervisor’s effort in raising service quality at the team level can be multiplied in its impact.

**Impact of service climate on service quality**

*Service climate* is derived from a consensual understanding, within a company, a department or a group, of how to behave in different settings and with different customer populations. Borucki and Burke (1999) defined service climate in terms of employee cognitive appraisals of the organization’s attitude towards employee well-being, and the concern of members of the organization about customer well-being. This includes the extent of the perception that management sets clear performance standards, provides appropriate training and information, removes obstacles to service, assists in employee job performance and distributes rewards for good service to customers. A favourable service climate is associated with excellent interdepartmental service (Schneider et al., 1998). Service climate is also related to the perception that
the organization and its members assist customers, and to outcome variables such as individual and organizational service performance (Borucki & Burke, 1999) and customer satisfaction with service quality (Johnson, 1996). Some data suggest that if the favourable service climate is ‘strong’ (i.e. when employees agree on their perception of the climate), then there is a low variability in customer satisfaction. However, a weak service climate is associated with a high variability in customer satisfaction (Schneider, Salvaggio, & Subirats, 2002).

Relationship between effective leadership behaviour of supervisors and service climate

Some writers have conceptualized leadership behaviour as a precursor to organizational climate (e.g. Dickson, Smith, Grojean, & Ehrhart, 2001; Koene et al., 2002; Litwin & Stringer, 1968) or group climate (Kivlighan & Tarrant, 2001). Kozlowski and Doherty (1989) integrated the vertical dyad linkage theory of leadership with climate perception, and showed that subordinates with whom a supervisor relates closely have a more positive evaluation of the organizational climate than subordinates who have a poor-quality relationship with their supervisors. More recently, Schneider et al. (1998) included in their formulation of service climate the subordinates’ perception of the actions of their immediate supervisors to reward, support and expect good customer service. Furthermore, management’s recognition and appreciation of quality service appears in the ‘climate for service’ scale. It should be noted, however, that although the supervisor is a member of the organization, his or her identity is separate from that of the organization. Although there is a partial overlap between the perception of a supervisor’s behaviour and the organizational climate, a frontline supervisor does not have the power to dictate all features contributing to the service climate. Instead, senior management cultivates and nurtures the service climate by designing the company’s compensation structure and setting policies on interdepartmental communication, the management of customer information, customer service policies and so forth. For this reason, this study treats service climate and the leadership behaviour of direct supervisors as conceptually separate entities. Moreover, in our measurement, we attempt to minimize any overlapping that may confound the two constructs.

Interaction between service climate and effective leadership behaviour: A moderating model

There is a large body of literature on the situational approach to leadership (e.g. Evans, 1970; Fiedler, 1967; House, 1971). A quarter of a century ago, Kerr and Jermier (1978) theorized that the effects of leadership can be substituted for, neutralized or enhanced by certain contextual variables. Many researchers (e.g. Howell, Bowen, Dorfman, Kerr, & Podsakoff, 1990; Podsakoff, MacKenzie, & Bettter, 1993; Podsakoff, Niehoff, MacKenzie, & Williams, 1993; Williams et al., 1988; Yukl, 1994) have concurred that Kerr and Jermier’s substitutes model is preferable to other situational approaches to leadership. It represents the most comprehensive attempt to identify situational factors and explains why some types of leader behaviour are effective in some situations but have no effect – or even a dysfunctional effect – in other situations (Podsakoff & MacKenzie, 1997).

However, not all empirical tests have been supportive of the substitutes model (e.g. Farh, Podsakoff, & Cheng, 1987; Podsakoff & MacKenzie, 1995; Podsakoff, MacKenzie, Ahearne, & Bommer, 1995). The search for contextual variables that may
moderate the impact of leadership on criterion variables is likened by some to looking for ‘a needle in a haystack’ (Podsakoff et al., 1995). This unenthusiastic view has been contested by advocates of the substitutes model. According to Villa, Howell, Dorfman, and Daniel (2003), the failure to detect moderators in leadership research may be traceable to the theoretical nature of many of the empirical tests. Indeed, an extensive review of the literature shows that variability in the performance of subordinates may be explained by a number of non-leader variables, such as the professional orientation of employees, task feedback, intrinsic job satisfaction, non-routine tasks, group cohesiveness and spatial distance among workers. When these factors are present, the competence of the leader becomes relatively unimportant.

In sum, the jury is still out on whether the substitute variables of Kerr and Jermier are in fact predictive of important criterion variables. Nevertheless, both sides agree that the substitutes framework should be used to stimulate further research. For example, Jermier and Kerr (1997) stated that they had never intended to treat the substitutes framework as a closed system, and that a better specification of the conceptual domain of substitutes is long overdue. One contextual variable – shared organizational values – was proposed by Podsakoff and McKenzie (1997), and may have particular promise as a moderator. They argued that shared values or work norms can replace hierarchy or coercion, because members of a value-based organization do not need much supervision.

In this study, we focus on the employees’ shared perception that the organization places much emphasis on customer well-being, and examine how such a service climate, like some organizational shared values, can moderate the impact of leadership behaviour in a service setting. Specifically, leadership effectiveness may be more strongly correlated with subordinates’ work performance when the organizational service climate is not favourable than when it is favourable. We speculate that, in organizations that do not have a positive service climate, not all employees will understand the need for satisfying customers or acquiring the means to do so, and nor will they perceive the organization as supporting good service. Under such circumstances, an important role of supervisors is to clarify what is expected of their subordinates in terms of customer service, and to provide the necessary coaching and managerial support to maintain the service quality of the work unit. This is consistent with the findings of Brubakk and Wilkinson (1996) that, during changes in corporate culture, managers play an important role in helping frontline employees to decode and interpret what must be changed. In short, when the organization or the team does not have a favourable service climate, the frontline supervisors’ effective leadership behaviour will play an important role helping individual service providers to understand service values and realize the importance of customer satisfaction. When team members work individually and collectively with peers to satisfy customers, the quality of service provided by the entire work team is strengthened.

There are times when leadership may not produce the intended effect. This happens in settings in which the organizational climate clearly supports, encourages, and rewards service (Martin, 2002). When there are sufficient mechanisms to guide and orchestrate employee behaviour, the immediate supervisor’s leadership behaviour is of relatively minor importance. Furthermore, a competent supervisor who issues directives that are not completely in line with the organizational values embodied in the service culture and climate can promote confusion and dysfunction. In such a situation, Porter and Bigley (2001) predict that role ambiguity results among
subordinates. This, in turn, depresses service quality indirectly, as Hartline and Ferrell (1996) showed in their study of hotel employees.

Hence, leadership can even backfire: ‘the popular idea that low levels of motivation can be remedied by increased transformational leadership behaviour appears to be overly simplistic where organizations are concerned. Indeed, low levels of employee motivation may be caused by too much transformational leadership behaviour in the organization’ (Porter & Bigley, 2001, p. 288). Likewise, when a highly acclaimed leader’s direction does not align with what is prescribed for a well-developed service climate, the benefits of leadership effectiveness and favourable service climate may be cancelled out.

We therefore hypothesize that the relationship between effective leadership behaviour and employee service quality will be stronger in work groups in an unfavourable service climate, and weaker or even reversed in those that operate in a positive service climate. We adopt a multi-level approach to test this hypothesis.

Method

Respondents and procedures

To ensure the generalizability of our prospective findings to a broad spectrum of companies in the service industry and to maximize the variability of the constructs of interest, we sampled a variety of organizations: a telecommunications company, a retail chain, two hotels, an auto-repair company and a government department. All of these organizations pride themselves in their effort to satisfy customers, and some have even made this a part of their mission statement. The research participants were all Chinese frontline service staff who worked in service teams of varying sizes.

A team is defined either by function or by locality. For instance, in a hotel, a team may comprise all of the staff in a restaurant, whereas in a retail organization, it may be defined by sales outlet. A team is generally led by a supervisor, to whom all team members report. During our negotiation with the organizations, we requested access to teams that met two conditions: the members of such teams had to have regular contact with customers, and the team members had to have more than 6 months working experience in that frontline position. For very large teams, we randomly selected about 75% of the individuals from a name list that the company supplied. We did not request participation from everyone in order to avoid unnecessary disruption to the company’s business day-to-day operation.

Fifty-five service teams (511 employees) participated in the study. They included 14 teams from the telecommunications company, 11 from the retail chain, 7 from the two hotels, 13 from the auto-repair company and 10 from the government department. The teams ranged in size from 5 to 20 members. Slightly over two-thirds had 10 or fewer members. In this sample, 61% of the participants were female, 49.5% were within the 15 to 30 age bracket, and 32.8% were within the 31 to 40 age bracket.

Data collection sessions were held in groups of 5 to 20 people in either a training room or a large recreation area near or at their place of work. Each session began with a researcher explaining that the aim of the study was to gain a better understanding of service workers. Although attendance was arranged by the respective organizations, the researcher told prospective participants that they could choose not to take part. Participation rates ranged from 60% to 85% in the sampled teams. If the participation rate went below 50%, the researcher dropped the team to move on to another.
The supervisors of the participants separately rated the service quality of their subordinates. Confidentiality was guaranteed for both the frontline employees and their supervisors. The questionnaires that the subordinates completed were collected at the end of the session, and the questionnaires of the supervisors were collected approximately one week after distribution.

Although we initially secured the cooperation of 1,035 employees, only teams with five or more members who provided complete answers to our survey questionnaire were included in our study. This was necessary because a reasonable group size was required for a reliable estimation of the group-level variables (Bliwise, Halverson, & Schriesheim, 2002), which were used in the hierarchical linear modelling (HLM) analysis.

**Measures**

**Supervisor’s effective leadership behaviour**

This construct was measured by aggregating the reports of subordinates about their supervisors on 15 behavioural items (see Appendix), adapted from several questionnaires used to measure leadership behaviour (Hui & Tan, 1999; Ling & Fang, 1995; Misumi, 1985). This selection was in keeping with our earlier argument that effective leadership behaviour comprises three aspects: task-oriented actions (or performance), people-oriented actions (or maintenance) and ethical leadership (or moral character). Most of the items that pertained to task-oriented and people-oriented actions were adapted from the Misumi (1985) Performance-Maintenance Questionnaire. The items on ethical leadership were derived from the studies of Hui and Tan (1999) and Ling and Fang (1995). A 6-point scale anchored by strongly disagree and strongly agree was used. A principal components analysis revealed only one general factor, which accounted for more than 59% of the total variance. The Cronbach’s alpha was .95.

**Service climate**

Schneider (Schneider, Ashworth, Higgs, & Carr, 1996; Schneider et al., 1998) developed four Climate for Service scales, namely, ‘global service climate’, ‘customer orientation’, ‘managerial practices’ and ‘customer feedback’. Of these, we used only the first two subscales (16 items in total). There are three reasons for this decision. First, we needed to keep the survey questionnaire to a reasonable length to secure the cooperation of both the companies and their employees. Second, these subscales are highly correlated with each other ($r = .50$ to .74; Schneider et al., 1998). With ‘global service climate’ being correlated with ‘customer feedback’ at $r = .63$, some subscales can clearly be omitted. Third, as there is already too much conceptual and textual overlap between the effective leadership behaviour measure and the ‘managerial practices’ subscale, to avoid confounding the effect of the former in our model, it was better to have left the latter out.

Some of the items that were included were: ‘employees’ job knowledge and skills to deliver work and service’, ‘the business does a good job keeping customers informed of changes that affect them’ and ‘top management has a plan to improve the quality of our work and service’. There were two items from the ‘climate for service’ measure that seem to refer to leadership (e.g. ‘the recognition and rewards employees receive for the delivery of superior work and service’ and ‘leadership shown by management in supporting the service quality effort’). However, closer examination revealed that they
are more related to the company’s general management practice than the behaviour of
direct supervisors and thus would not confound our two research variables.
A comparison of two models (one with and the other without the two items as part
of the leadership behaviour measure) also confirmed this. For this reason, we decided to
retain the two items in our measure.

The subsequent principal component analysis indicated a unidimensional structure.
This is not surprising in view of the high correlation ($r = .74$) that was first reported by
Schneider et al. (1998). The 7 items of the ‘global service climate’ subscale were rated
on a 5-point scale that ranged from poor to excellent). However, since the items of the
‘customer orientation’ subscale were anchored by strongly disagree and strongly agree,
we used a 6-point format to avoid a ‘neutral’ mid-scale anchor for our Chinese
respondents, who are relatively high on a central tendency response set. To give equal
weighting to each item when aggregating for an overall service climate score, we
transformed the 5-point ratings into a 6-point scale by subtracting the ratings by 1 and
dividing by 4. We then multiplied the ratio by 5 and added 1 to the product term. The
Cronbach’s alpha was .90.

Although most of the items used in this study were validated previously, there may
still be questions as to whether there are conceptual differences between organizational
service climate and leadership behaviour. To verify this, we conducted confirmatory
factor analyses on the 15 leadership and 16 service climate items, to test whether the
team members’ ratings would load on two distinct factors. Results showed that the one-
factor model (CFI = .89, GFI = .83, AGFI = .81, RMSEA = .07, $\chi^2 (434) = 1,404.361$) offered a significantly poorer fit than the two-factor model (CFI = .90, GFI = .84,
AGFI = .82, RMSEA = .06, $\chi^2 (435) = 1,310.48$; $\chi^2$ difference test statistic = 93.88,
$df = 1$, $p < .0001$). This confirms that, although related to each other, service climate
and leadership behaviour are conceptually distinct.

**Outcome measures**

Employee quality of customer service was operationalized by the respective supervisor’s
ratings on an Employee Service Quality Scale (Hui, Cheng, & Gan, 2003). The first
subscale, ‘service to internal customers’, had 9 items that explored facilitative behaviour
directed at internal customers. The raters reported the frequency of such actions over
the previous 3 months (1 = once or never; 6 = six or more times). Sample items
included ‘respond immediately to co-workers’ urgent requests’, ‘inform other team
members about changes that might affect service quality’ and ‘voluntarily assist workers
from other departments’. The Cronbach’s alpha was .90. The second subscale, ‘service
to external customers’, had 7 items, and measured behaviour that was directed at
external clients. Sample items included ‘willingly listen to customers’ requests’, ‘provide
non-standard service to customers’ and ‘liaise with different departments to provide
service in one service contact’. The Cronbach’s alpha was .86. For both subscales, a high
score indicated high service quality. Although the two subscales are correlated (Table 1),
confirmatory factor analyses conducted using AMOS showed that the one-factor model
(CFI = .73, GFI = .70, AGFI = .61, RMSEA = .14, $\chi^2 (119) = 1570.30$) offered a
significantly poorer fit than the two-factor model (CFI = .85, GFI = .83, AGFI = .76,
RMSEA = .11, $\chi^2 (118) = 801.83$; $\chi^2$ difference test statistic = 568.47, $df = 1$,
$p < .0001$). Service to internal customers and service to external customers are related
but non-identical aspects of an underlying service construct. Hence, we treated these
two subscales as separate outcome measures.
Hierarchical linear modelling (HLM) as a multi-level analytic technique

HLM is a popular method for analysing data in a nested structure by constructing a separate submodel at each of the levels in the data structure (Bryk & Raudenbush, 2002; Bryk, Raudenbush, & Congdon, 1996). It allows us to make simultaneous inferences on the effects of variations in the independent variables at the individual level and group level on the dependent variables, and the cross-level moderating effect of the independent variables on the dependent variable at the individual level.

To understand multi-level models, it is useful to begin with a simple (single-level) regression model for employee service quality ($y_i$):

$$y_i = b_0 + b_1x_i + e_i,$$

where the subscript $i$ represents the $i$th employee and $x_i$ is the employee rating of the supervisor’s leadership behaviour centred about the supervisor mean. The model assumes that the differences between supervisors are constant across the range of employee service quality scores. We can think of the regression line as a supervisor-level summary of this relationship, which may vary from supervisor to supervisor. This kind of variation is known as group-level variation. To account for both individual-level and group-level variation, we consider the following multi-level model with random intercepts:

**Individual level**: $y_{ij} = b_{0j} + b_1x_{ij} + e_{ij}$.

**Group level**: $b_{0j} = c_0 + c_1gx_{ij} + c_2gc_j + c_3gx_{ij} \times gc_j + u_j$,

where the subscript $i$ indicates the employee and the subscript $j$ indicates the supervisor, and $gx_{ij}$ represents the aggregated ratings of the supervisor’s effective leadership behaviour, $gc_j$ represents service climate and $gx_{ij} \times gc_j$ represents the interaction between the two. To see all of the predictors that are implied in the two-level model, we substituted the group-level model into the individual-level model, which resulted in a single equation model:

$$y_{ij} = (c_0 + c_1gx_{ij} + c_2gc_j + c_3gx_{ij} \times gc_j + u_j) + b_1x_{ij} + e_{ij}.$$

At the individual level, a linear model was built to predict employee service quality based on the individual ratings of the supervisor’s effective leadership behaviour $x_{ij}$.
As $x_{ij}$ is centred about the supervisor mean, each intercept parameter $b_{ij}$ that was obtained from the individual level indicated the corresponding supervisor’s mean rating of the service quality of their subordinates. At the group level, another linear model was built to relate these intercept parameters and the aggregated ratings of the supervisor’s effective leadership behaviour and service climate. The model had two residuals: the individual level residual $e_{ij}$, which measured the difference between actual employee service quality and expected service quality based on the individual-level model, and the group-level residual $u_j$, which measured the difference between a supervisor’s mean rating of the service quality of subordinates and the supervisor’s expected service quality rating based on the group-level model.

Results
Preliminary analyses

The employees in the sample were slightly older ($t = 22.55, p < .001$) and more experienced in the industry ($t = 33.78, p < .001$) than those that were not selected for the study. They had also been employed longer in the organization ($t = 68.43, p < .001$). Despite this, the two groups did not differ in their rating of their supervisor’s leadership behaviour ($t = 1.10, ns$) and service climate ($t = 0.02, ns$), nor did they differ in quality of service for internal ($t = 1.64, ns$) and external customers ($t = -1.04, ns$).

All subsequent analyses were performed on the sample of 511 employees. Table 1 shows the means, standard deviations and correlations of the variables at the individual and group levels.

At both levels, the quality of service that was delivered to internal customers is associated with that delivered to external customers, but not to service climate. The ratings of service climate and effective leadership behaviour are also correlated. Service quality is significantly related to effective leadership behaviour at the individual level, but not at the group level. To account for the impact of different types of business and organizational structures on service quality, we controlled for organization type (i.e. public vs. for-profit) in our analyses. After introducing the multi-level structure to the model, we found the organization type effect to be significant for service quality to external customers, but not for service quality to internal customers.

Data aggregation: Analysis of within-group consistency and between-group differences

Both $\eta^2$ and intra-class correlation (ICC(1)) as computed through a random intercepts model indicated the proportion of total variance between teams (Bliese, 2000; Bryk & Raudenbush, 2002). According to Bliese, ICC(1) values are typically under .20 and are usually smaller than the corresponding $\eta^2$ values. In our case, the ICC(1) and $\eta^2$ are .26 (range = .06–.50) and .20, respectively, for service climate, and .14 (range = −.02−.33) and .22, respectively, for effective leadership behaviour. ICC(2) was used to estimate the reliability of the mean values that we obtained from aggregation. The ICC(2) values for service climate and effective leadership behaviour are .51 and .58, respectively. There is thus a substantial variance in service climate and effective leadership behaviour between teams.

The mean $r_{wg}$ values (James, Demaree, & Wolf, 1993) for the two group-level variables (service climate and effective leadership behaviour) are .62 ($SD = 0.24$) and .80
Taken together, the $r_{wg}$ and ICC values reveal an overall picture of between-team difference and some within-team similarities. The broad range of agreement values reflects reality that, in certain teams and for various reasons, members do not always concur in their perceptions. Although somewhat below the recommended benchmark, ICC (1) = .12 (James, 1982) and ICC (2) = .60 (Glick, 1985), the ICC estimates for service climate are above those that are reported by Schneider et al. (1998), with ICC (1) = .09 and ICC (2) = .47. As Schneider et al. were still able to aggregate for group data and obtain meaningful analytic results at that level of agreement, given our present ICC estimates, aggregation is still a reasonable method for estimating the two group-level variables of service climate and effective leadership behaviour.

Hierarchical regression analysis

We conducted a two-level hierarchical regression analysis to predict service quality for internal customers and another to predict service quality for external customers. The proportion of variance in service quality for internal customers between supervisors is 36.4%, and the proportion of variance in service quality to external customers between supervisors is 60.7%. This means that around 36% to 61% of the variation occurs over the employees nested within the supervisors. A significant chi-squared statistic for the error variance that is estimated at the group level indicates that there is systematic variance in the intercept across supervisors (residual variance for service quality to internal customers = 0.64, $p < .0001$; residual variance for service quality to external customers = 1.13, $p < .0001$). Tables 2 and 3 contain the regression coefficients of the hierarchical regression analyses.

Three multi-level regression models were considered, with the effects of organization type, team size and effective leadership behaviour being controlled for at the individual level. Model 1 depicts the impact of effective leadership behaviour only, and is supported at the individual-level for both dependent variables. Model 2 includes both predictors at the individual and group levels. However, the addition of this service climate variable did not improve the prediction of either dependent variable at either level.

Model 3 differs from Model 2 in that it includes the interaction term at both the individual and group levels, although only the interaction term at the group-level is significant for both dependent variables. Testing Models 2 and 3 revealed that the psychological service climate at the individual-level did not have a significant effect. This is probably because the construct is either non-existent or because there is too much measurement error. If the latter is true, then there is a reason for aggregating the data and for examining the effects at the group-level only. In fact, the removal of the psychological service climate at the individual level yielded similar results, which are not shown here due to space limitations.

To interpret the interaction effect on service quality in Model 3, we considered two levels of effective leadership behaviour and two levels of service climate by taking the standard deviation from its own mean and forming high and low levels of effective leadership behaviour and of favourable service climate. Figure 1 shows the estimated quality of service to internal and external customers for these four combinations. When the service climate is poor, a supervisor who displays effective leadership behaviour enhances employee service quality. A simple slope test (Aiken & West, 1991) showed that this effect is especially pronounced for service to external customers.
Table 2. Two-level hierarchical regression analysis predicting service quality to internal customers

<table>
<thead>
<tr>
<th>Level</th>
<th>Variable</th>
<th>Coefficients</th>
<th>Standardized coefficients of Model 3</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td>Individual</td>
<td>Public versus for-profit organization</td>
<td>-23 (.16)</td>
<td>-25 (.19)</td>
</tr>
<tr>
<td></td>
<td>Group size</td>
<td>.01 (.04)</td>
<td>.01 (.04)</td>
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<tr>
<td></td>
<td>Effective leadership behaviour</td>
<td>.20 (.05)***</td>
<td>.19 (.07)**</td>
</tr>
<tr>
<td></td>
<td>Psychological service climate</td>
<td>.02 (.07)</td>
<td>.02 (.07)</td>
</tr>
<tr>
<td></td>
<td>Effective leadership behaviour × Psychological service climate</td>
<td>-05 (.07)</td>
<td>.01 **</td>
</tr>
<tr>
<td></td>
<td>Effective leadership behaviour × Service climate</td>
<td>-.21 (.32)</td>
<td>-.18 (.35)</td>
</tr>
<tr>
<td>Group</td>
<td>Intercept</td>
<td>2.84 (.16)***</td>
<td>2.83 (.18)***</td>
</tr>
<tr>
<td></td>
<td>Effective leadership behaviour</td>
<td>-.21 (.32)</td>
<td>-.18 (.35)</td>
</tr>
<tr>
<td></td>
<td>Service climate</td>
<td>-.08 (.36)</td>
<td>-.04 (.36)</td>
</tr>
<tr>
<td></td>
<td>Effective leadership behaviour × Service climate</td>
<td>-.94 (.38)*</td>
<td>-.23 **</td>
</tr>
</tbody>
</table>

Public organization (coded 1): a government department.
For-profit organization (coded -1): hotels, a telecommunications company, an auto-repair company and a retail chain.
*p < .05; **p < .01; ***p < .001
*aStandard errors are in parentheses.
*bThis control variable can be entered at either the individual level or the group level without changing the value of the parameter estimates.
Table 3. Two-level hierarchical regression analysis predicting service quality to external customers

<table>
<thead>
<tr>
<th>Level</th>
<th>Variable</th>
<th>Coefficients</th>
<th>Standardized coefficients of Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 3</td>
</tr>
<tr>
<td>Individual</td>
<td>Public versus for-profit organization(^b)</td>
<td>-0.36 (.18)*</td>
<td>-0.45 (.20)*</td>
</tr>
<tr>
<td></td>
<td>Group size</td>
<td>0.10 (.03)**</td>
<td>0.09 (.03)**</td>
</tr>
<tr>
<td></td>
<td>Effective leadership behaviour</td>
<td>0.12 (.04)**</td>
<td>0.16 (.05)**</td>
</tr>
<tr>
<td></td>
<td>Psychological service climate</td>
<td>-0.07 (.06)</td>
<td>-0.07 (.06)</td>
</tr>
<tr>
<td></td>
<td>Effective leadership behaviour \times Psychological service climate</td>
<td>-0.05 (.07)</td>
<td>-0.05 (.07)</td>
</tr>
<tr>
<td>Group</td>
<td>Intercept</td>
<td>3.35 (.18)**</td>
<td>3.29 (.20)**</td>
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<tr>
<td></td>
<td>Effective leadership behaviour</td>
<td>0.30 (.34)</td>
<td>0.47 (.38)</td>
</tr>
<tr>
<td></td>
<td>Service climate</td>
<td>-0.39 (.45)</td>
<td>-0.34 (.44)</td>
</tr>
<tr>
<td></td>
<td>Effective leadership behaviour \times Service climate</td>
<td>-0.98 (.44)*</td>
<td>-0.98 (.44)*</td>
</tr>
</tbody>
</table>

Public organization (coded 1): a government department.
For-profit organization (coded -1): hotels, a telecommunications company, an auto-repair company and a retail chain.
*p < .05; **p < .01; ***p < .001
\(^a\)Standard errors are in parentheses.
\(^b\)This control variable can be entered at either the individual level or the group level, without changing the value of the parameter estimates.
Discussion

This study aimed to examine how the two key variables of effective leadership behaviour and service climate are related to the work performance of frontline employees. We hypothesized that the relationship between supervisors’ effective leadership behaviour and subordinates’ service quality would be more prominent in an unfavourable than in a favourable service climate. The results provide preliminary support to our prediction of an interaction effect. In an unfavourable service climate, compared with teams led by less effective supervisors, teams led by effective supervisors delivered better service (especially to external customers). In a favourable service climate, however, effective leadership behaviour does not seem to enhance the service that subordinates provide to external customers. It may even be negatively related to the quality of service provided to internal customers. In the following paragraphs, we interpret the interaction effects, speculate on why combining effective leadership behaviour with a favourable service climate does not always lead to better team outcomes, discuss why neither variable has a main effect on team outcomes and describe the limitations of this study.

Interaction effect on quality of service to external customers

In the present study, teams led by effective supervisors and having a favourable service climate did not receive the highest ratings on quality of service to external customers. The first explanation is that supervisors (also the raters) in such teams had very high performance expectations for their subordinates, and were therefore harsh when rating their subordinates’ service quality. Second, as we pointed out in the Introduction, a co-occurrence of a good leader and a favourable service climate may lead to role conflict.
that is, when the leader points at a direction different from that of the company. Third, perhaps a favourable service climate does not alter the level of service very much. Instead, it merely maintains a certain level of service critical for the organization to survive, such that the service quality is consistent even when the team is under the supervision of someone not very effective in leadership. However, an unfavourable climate becomes a backdrop for competent leaders to demonstrate their skills and charisma in full strength, and to motivate their subordinates into productive activities. Furthermore, when organizational service climate is not as favourable, employees may not know exactly what their performance goals should be. Those who are willing to work extra hard could be prompted by a good leader to display more service behaviour. This effect was evident in some dot-coms that were starting up during the 1990s. While those companies did not have in place a perfect set of practices and policies (which are a component of favourable service climate), at the inspiration of their visionary bosses employees were still willing to work extra hours to serve their customers.

Of course, we would not recommend that management should keep service climate unfavourable in order that frontline employees have high external service quality. Maintaining an unfavourable service climate would put businesses at risk. This is because teams that have poor service climate may deliver no service at all, if the supervisor is a very ineffective leader, as can be visualized by extrapolating the left-hand bottom part of Figure 1. Unfavourable service climate is a liability to any organization, while a favourable climate provides a buffer against poor leadership. In fact, strong management should be introduced and competent managers selected for places where service climate is poor.

Interaction effect on quality of service to internal customers
The fact that employees deliver a better service to internal customers when their supervisors are ineffective leaders than when their supervisors are effective in a favourable service climate is not unexplainable. This phenomenon is consistent with the suggestion of Netemeyer, Boles, Mckee, and McMurrian (1997) that colleagues help one another to enhance customer relations when supervisors cannot provide timely assistance and advice. As our data show, such mutual assistance when supervisors are ineffective exists only in a service climate that provides members with structures, standards and implicit rules on satisfying customers. A positive organizational climate may have cultivated a collegial spirit and motivated employees to make up for any shortcomings that are due to supervisors not functioning as they should. In the absence of such a climate, however, members are unlikely to become good organizational citizens.

Ironically, when the service climate is favourable and leadership is effective, the quality of service may also be low. Teams with both ‘desirable’ conditions recorded a lower than expected performance. This finding is nevertheless in line with that which others have reported in the literature. For example, in their study of over 100 teams in the pharmaceutical industry, Gibson and Vermeulen (2003) found that when a team ‘already has an impetus to [perform], a performance management push by its . . . . leader may be superfluous’ (p. 214). This set of findings corroborates the postulation that leaders are not needed under certain conditions (De Vries, Roe, & Taillieu, 2002; Kerr & Jermier, 1978).

Although this pattern of interaction confirms the predictions of the substitutes model, it challenges the deep-seated belief that an effective leader and a favourable
climate should be additive in their positive impact on employees’ service to their colleagues and peers. For this somewhat novel finding, we offer further theoretical and analytical discourse.

First, a highly effective (and therefore possibly persuasive) supervisor and a favourable service climate together may be confusing to the subordinates, if their directions are not consistent with each other. This proposition deserves further investigation in future research.

Second, when the supervisor and the service climate are working in alignment, the result would probably be an emphasis on serving external customers over the internal ones. This is because few organizations explicitly enforce and reward extra-role behaviour (Organ, 1988, 1997). Therefore, working beyond their prescribed duties to assist their colleagues is entirely the employees’ discretion. These discretionary acts will be less frequent when two conditions coexist: a positive service climate that directs the attention of employees to their tasks, which for our participants working in the frontline, largely involves serving external customers, and a supervisor who effectively reinforce this idea. After all, management assesses and rewards frontline employees primarily on the basis of how well they serve external customers, but not internal customers, even though it is important to do both.

Third, as in the case of rating of service to external customers, this rating could be harsh among effective supervisors and less so among the less effective ones. The emphasis of service in the organization or team may also elevate the expectations, thus resulting in a lower rating of employees who were in teams where the service climate was favourable and the leader was highly competent. The above explanations should be taken with a grain of salt, because although the interaction effect was significant, neither slope was significantly different from zero.

**Absence of group-level main effects**

In this study, effective leadership behaviour predicted employee service quality only at the individual level but not at the group level. Two explanations can be offered for this apparent inconsistency. First, the correlation at the individual level may merely be a result of mutual appreciation between the supervisor and the subordinate spilling over into the subordinate ratings of leadership behaviour and the supervisor ratings of service quality. Second, individual ratings of the leadership behaviour of supervisors reflect the supervisor’s actions towards the subordinate concerned, and therefore have a stronger impact on the subordinate’s work performance than an abstract measure of leadership behaviour that is displayed towards a range of subordinates and aggregated from ratings provided by these subordinates.

We did not find any main effect of service climate. A positive service climate does not always result in the favourable evaluation of the work performance of service providers. Although one may attribute this to the fact that we did not measure service climate with the ‘customer feedback’ subscale, we note that Schneider et al. (2002) found no main effect for service climate on customer perception either, despite using the full scale. We believe that service climate is more ‘remote’ and intangible than leadership behaviour from the subordinates’ perspective, and thus is less potent. Another explanation is that, although there may be a link between service climate and individual employee service performance in theory, the operation of a myriad other factors and moderators may have masked the relationship. Unfortunately, many of these moderators are as yet unknown. This study, which sampled a variety of organizations, takes a step towards understanding
the boundary conditions that surround the effect of service climate. As we have shown, a positive service climate may well go some way towards preserving service quality when leadership is mediocre, but paradoxically may not help when the supervisor displays behaviour that is regarded as effective.

One further explanation for the lack of effect of service climate pertains to methodology. In the teams in which good service was accorded a high value, supervisors might have been conditioned to use an unduly high standard when they rated the performance of their subordinates. The net result of this stringency bias would then be a depression of performance ratings in the teams that operated within a favourable service climate. However, although this is a possible explanation, future research should continue to search for substantive explanations for this phenomenon.

At a conceptual level, these findings cast doubt on the robustness of a direct causal link between leadership behaviour and organizational service climate on the one hand and employee service quality on the other. On the contrary, they provide support for the substitutes model that is discussed at the beginning of this article. More research is needed to replicate the present findings and to identify other boundary conditions of these determinants.

Limitations, future research and practical implications

Like any study, this one is not without limitations. We have slightly over-sampled older and more experienced employees, and many of the teams that were sampled had fewer than 10 members and some as few as 5. This sampling procedure presented two problems. First, the data that were aggregated from a small group might have been corrupted by one or two outliers, which would have resulted in unreliable findings. Second, the generalizability of our findings to larger teams may be restricted. Fortunately, subsequent correlation analyses showed no systematic relationship between team size and any of the major variables except service quality to external customers ($r = .26, p < .001$). Furthermore, as team size was controlled in all of the regression analyses, we can be confident that its effect on our findings was minimal. All things considered, our findings are probably generalizable to working environments with small and medium-sized service teams that are staffed by ‘seasoned’ customer service personnel.

Another limitation of the present study is that employees’ service quality was assessed by supervisors only. While the use of supervisory rating is already an improvement over the use of self-rating as in most early organizational citizenship behaviour studies, supervisors’ rating stringency could partially account for the observation that effective leadership did not bring good performance ratings when service climate is excellent. Future research should therefore examine the interaction effect with other rating sources, such as using customers’ and possibly 360° assessment.

This study has several practical implications. In today’s economy, the bottom line of commercial organizations depends on how service is delivered at the frontline. To excel in the service industry, supervisors are taught leadership skills and management consultants are brought in to help cultivate a service climate. Sometimes these initiatives are uncoordinated, with supervisors and management consultants emphasizing their own interest domain. For example, leadership workshops may inspire supervisors to be attentive to the needs of their subordinates and to encourage them to innovate, whereas management consultants may implement standardized ways in which to serve
customers better. These two driving forces are not necessarily opposed to one another, but organizations should be aware of any potential incompatibility or redundancy.

In sum, the present study is probably one of the few to suggest that a good supervisor and a positive service climate may work against one another. Practitioners are thus advised to assess how these two performance drivers can best be combined and managed in their own organizations. However, readers are reminded that results and discussions of this study, while intriguing, are exploratory and need to be replicated in future research.

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References


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**Appendix. Translation of items used to measure effective leadership behaviour**

(1) Your supervisor rarely ‘stabs people in the back’ or seeks personal vengeance.

(2) Your supervisor often introduces unique insights and plans.

(3) Even if problems at work arise, your supervisor rarely scolds subordinates unreasonably.

(4) Your supervisor rarely curry slavish favour with senior management or submits unquestioningly.

(5) Your supervisor can flexibly cope with any unpredictable circumstances.

(6) Your supervisor rarely gets too irrational and emotional at work.
(7) Your supervisor rarely abuses his/her power and authority.
(8) Your supervisor respects the decisions made by subordinates in their area of authority and responsibility.
(9) Your supervisor rarely takes undeserved credit for other people’s work.
(10) Your supervisor is mindful of meeting deadlines in his/her work.
(11) Your supervisor listens to subordinates’ views and accepts their criticism with a humble attitude.
(12) Your supervisor handles issues decisively.
(13) Your supervisor rarely works through inappropriate relations or uses underhanded means to accomplish things for his/her own interest.
(14) Your supervisor provides useful suggestions when a subordinate encounters problems at work.
(15) Your supervisor encourages his/her subordinates to freely voice their opinions.