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Test of a service profit chain model in the retail banking sector

Garry A. Gelade[1]* and Stephen Young[2]
[1]Business Analytic Ltd, London, UK
[2]ISR Ltd, London, UK

Research has shown that organizational subunits where employee perceptions are favourable enjoy superior business performance. The service profit chain model of business performance (Heskett, Sasser, & Schlesinger, 1997) has identified customer satisfaction as a critical intervening variable in this relationship. This paper examines the relationships between organizational climate, employee attitudes, customer satisfaction, and sales performance in the retail-banking sector. The role of customer satisfaction as a mediator between employee attitudes and sales performance is examined in a large sample of bank branches, spanning multiple organizations. Mediation effects are found, which border on significance when the sample size is large, but the effects seem to be too small to be of practical importance. It is argued that alternative formulations of the service profit chain model may provide more powerful explanations of the link between employee attitudes and business performance.

Many organizations contain multiple subunits ('business units') that consume the same kinds of resources, and produce the same kinds of outputs. Examples of such business units are the stores of a retail chain, the plants of a manufacturing company, or the branches of a bank. The financial health of an organization with multiple business units is critically dependent on effective performance at the business unit level, and it is, therefore, of major concern to identify the characteristics of effective and ineffective units. A number of researchers have found that revenue-based measures of business unit performance, for example, sales and profitability, are significantly correlated with employees' work-related perceptions. The evidence suggests that business units in which employees' collective perceptions are relatively favourable perform better. (Collective perceptions are measured by aggregating individual perceptions to the business unit level.)

For example, Ryan, Schmit, and Johnson (1996) demonstrated that average levels of job/company satisfaction, positive perceptions of teamwork and (lack of) stress in the branches of a finance company, are associated with superior market share, reduced debt

* Correspondence should be addressed to Dr Garry Gelade, Business Analytic Ltd, 1, Circus Lodge, Circus Road, London NW8 9JL, UK (e-mail: garry@business-analytic.co.uk).

delinquency, and fewer credit losses. Similarly, Koys (2001) found that levels of employee satisfaction/commitment in the outlets of a restaurant chain were positively related to profitability. In the retail sector, perceptions of a strong service climate have been linked to enhanced store financial performance (Borucki & Burke, 1999), and positive job-related attitudes to increased sales (Leung, 1997), and to revenue growth (Rucci, Kirn, & Quinn, 1998). In addition, George and Bettenhausen (1990) found links between the positive mood of store managers and sales volume. To date, the largest study of employee perceptions and business unit performance is a meta-analysis of 7,939 work units in 36 companies, conducted by Harter, Schmidt, and Hayes (2002). These authors found small but significant correlations between business unit productivity and profitability, and a composite of items they call employee engagement. Patterson, Warr and West (2004) have recently reported significant associations between company climate and subsequent productivity in a sample of 42 manufacturing companies. Average job satisfaction was a mediator of this relationship.

Overall, these results suggest that positive employee work experiences, as reflected by elevated business unit scores on a variety of attitudinal and climate measures, are associated with enhanced financial performance. However, the processes that link employees' experiences and attitudes to business unit effectiveness remain to be clarified.

The service profit chain

One plausible account of the link between the employee's work experiences and financial performance holds that, in the service sector, customer satisfaction is a critical intervening variable. Management theorists call this view of organizational performance the *service profit chain* (Heskett *et al.*, 1997). Stated simply, the service profit chain asserts that satisfied and motivated employees produce satisfied customers and satisfied customers tend to purchase more, increasing the revenue and profits of the organization. Heskett *et al*. (1997), for example, define the service profit chain as 'involving direct and strong relationships between profit; growth; customer loyalty; customer satisfaction; the value of goods and services delivered to customers; and employee capability, satisfaction, loyalty and productivity.' (p. 11). These authors recommend the service profit chain as a framework for constructing a strategic organizational vision, and suggest that, provided service profit chain concepts are carefully interpreted and adapted to an organization's specific situation, they are capable of delivering 'remarkable results' (p. 18).

As Allen and Grisaffe (2001) have remarked, ideas like the service profit chain have had considerable influence in management circles, and it is, therefore, important for occupational and organizational psychologists to examine them critically. To date, however, most investigations of the service profit chain have considered only bivariate relationships between the relevant variables. The contribution of the present paper is to conduct a stricter test of the service profit chain within the broader context of organizational functioning.

The service profit chain and models of organizational functioning
We first consider how the service profit chain model fits within a more general framework of organizational theory. Our staring point is the conceptual model of organizational functioning proposed by Ostroff and Bowen (2000). (A broadly similar

model was proposed by Kopelman, Brief, & Guzzo, 1990.) In the Ostroff and Bowen model, contextual social factors and the human resource (HR) system lie at the start of a hypothesized causal chain. According to Ostroff and Bowen, a fair and consistent HR system communicates positive and clear signals to employees and fosters the development of positive perceptions of what the organization is like, and a favourable shared climate. Climate, in turn, influences employee attributes (referred to as collective attitudes by Ostroff & Bowen, 2000, and as cognitive and affective states by Kopleman *et al.*) such as commitment, motivation, and identification with the organization. Positive attitudes lead to salient employee behaviours such as attachment (attendance and staying with the organization), performance (execution of in-role tasks), and citizenship (discretionary pro-social behaviours), that increase organizational productivity (Kopelman *et al.*, p 299). Empirical evidence for such linkages has been reported by Simons and Roberson (2003).

Within this framework, the service profit chain may be described as follows: climate influences employee commitment, and employee commitment influences both customer satisfaction and sales. Furthermore, because the service profit chain model claims that sales achievement results from increased customer satisfaction, it follows that customer satisfaction should mediate the relationship between commitment and sales.

In this paper, we explore the adequacy of this model in accounting for the sales performance of branches in the retail banking sector. As we shall be concerned with the organizational (i.e. bank branch) level of analysis, it is organizational climate (shared perceptions of branch policies, practices and procedures), rather than psychological climate (individuals' perceptions and interpretations of what the branch is like), that constitutes the initial variable in the proposed model.

In the following sections we review the current empirical evidence for the service profit chain from the psychology, consumer, and marketing literatures.

Employee experiences and customer satisfaction

As usually conceived of by its proponents, the service profit chain is thought to involve an association between employee satisfaction and customer satisfaction (see e.g. Heskett *et al.*, 1997; Wiley & Brooks, 2000; Rucci *et al.*, 1998). Research supports such an association. Reported correlations between customer satisfaction and a wide range of employee perceptions provide ample evidence to suggest that favourable employee experiences, as reflected by attitudes such as satisfaction and commitment, and by positive evaluations of organizational climate, are associated with elevated levels of customer satisfaction.

Citing the work of Wiley (1991), Tornow and Wiley (1991), and Ulrich, Halbrook, Meder, Stuchlik, and Thorpe (1991), Schneider, Bowen, Ehrhart and Holcombe (2000) state that 'job satisfaction and commitment surveys when aggregated to the unit level (. . .) reveal significant relationships with customer satisfaction . . .' (p. 32). Furthermore, both Ryan *et al.* (1996) and Koys (2001) have reported correlations between customer satisfaction and measures of employee satisfaction.

Further evidence comes from research on climate by Schneider and others. Schneider and his co-workers (e.g. Schneider & Bowen, 1985; Schneider & Bowen, 1992; Schneider, Parkington, & Buxton, 1980; Schneider, White, & Paul, 1998) have demonstrated that employees' perceptions of the climate for service predict levels of customer satisfaction. Studies by Schmit and Allscheid (1995), and Johnson (1996) also

support the notion of a link between favourable climates and enhanced customer satisfaction at the business unit level. Although climate constructs are clearly to be distinguished from more affective attitudinal dimensions (such as job and company satisfaction and organizational commitment; La Follette & Sims, 1975; Parker, 1999), there is considerable evidence that favourable climates are associated with high levels of satisfaction and commitment (e.g. Alvarez, 1998; Gunter & Furnham, 1996; Johnson & McIntye, 1998; Kline & Boyd, 1991; Muchinsky, 1977; Ostroff, Kinicki, & Clark, 2002; Welsch & LaVan, 1981). Therefore, it is not surprising to find that both attitude measures and climate measures have been found to correlate with customer satisfaction.

Harter *et al.* (2002), also found their employee engagement measure was correlated with customer satisfaction. In general, it appears that favourable experiences in the workplace are frequently associated with favourable experiences for the customer.

Consumer researchers have suggested that such results could be explained by the mechanism of emotional contagion (Hatfield, Cacioppo, & Rapson, 1993; Schoenewolf, 1990). This is a process whereby the expressed affect of a sender influences the affect of a receiver. According to this conception, employees who feel positive about their workplace radiate positive affect in the course of conducting their work. These emotions are perceived and absorbed by customers, who, as a result, experience pleasant service encounters. For example, Pugh (2001) demonstrated that the display of positive emotion by bank employees is positively related to customers' positive affect following service encounters, and to their evaluations of service quality. If employee behaviours within a business unit are correlated, such processes could account for correlations between collective attitudes and customer satisfaction at the business unit level of analysis. However, other mechanisms are equally plausible. Dissatisfied employees are more likely to leave, causing business units with lower than average satisfaction levels to have lower than average levels of staff expertise (Gelade & Ivery, 2003), which could also reduce levels of customer satisfaction.

In summary, then, the empirical evidence provides a broad measure of support for the employee–customer link in the service profit chain.

Customer satisfaction and financial performance

The second crucial element of the service profit chain is the link between customer satisfaction and financial performance. Management theorists and chief executives have often argued that superior business performance depends critically on satisfying the customer (e.g. Heskett *et al.*, 1997; Peters & Waterman, 1982; Watson, 1963).

In support of this view, consumer researchers have established that customers who are satisfied with a supplier report stronger intentions to purchase from that supplier than do dissatisfied customers (e.g. Anderson & Sullivan, 1993; Mittal, Kumar, & Tsiros, 1999; Zeithaml, Berry, & Parasuraman, 1996). However, as noted by Verhoef, Franses, and Hoekstra (2001), the link between customer satisfaction and actual, as opposed to intended, purchase behaviour is less well established. Indeed, the results are mixed, with both positive findings (e.g. Bolton, 1998; Bolton & Lemon, 1999) and null findings (e.g. Hennig-Thurau & Klee, 1997; Verhoef *et al.*, 2001).

At the business unit level of analysis, relationships between customer satisfaction levels and financial performance have been reported by both consumer and organizational researchers. Correlations between customer satisfaction and financial performance have been noted in the restaurant sector by Bernhardt, Donthu and

Kennett (2000), and in the retail sector by Rucci *et al.* (1998). In the banking sector, Loveman (1998) found that higher customer satisfaction leads to increased cross-selling at the branch level, and Ittner and Larcker (1998) found customer satisfaction was a leading indicator of revenue, and growth in the customer base, in bank branches.

Overall, and despite some negative findings, these results support the general conception of a link between customer satisfaction and financial performance.

The mediating role of customer satisfaction

To summarize, the service profit chain is a conceptually appealing theory of organizational performance, and the empirical evidence suggests that it may be applicable at the business unit level of analysis. However this evidence is largely piecemeal. The central proposition of the service profit chain is that customer satisfaction mediates (either partially or completely) the relationship between employee experiences and financial performance. With one exception, this conjecture has not (to our knowledge) been tested, even where the relevant variables were available. For example, both Loveman (1998), and Ryan *et al.* (1996), examined employee attitudes, customer satisfaction, and financial performance at the business unit level, but neither examined mediation effects. Only Rucci *et al.* (1998) have reported a mediation model. They stated that '(. . .) a 5-point improvement in employee attitudes will drive a 1.3-point improvement in customer satisfaction which in turn will drive a 0.5% improvement in revenue growth (. . .).' However, insufficient statistical detail was presented in their article to allow a critical assessment of these findings, and it is not clear whether they tested for partial mediation or simply assumed a fully mediated model.

The remainder of this paper describes an empirical test of the service profit chain hypothesis. First we examine a structural model embodying the relationships between climate, attitudes, customer satisfaction and sales, and we then conduct formal tests for the mediating effects of customer satisfaction. The analyses are conducted at the business unit level, with the null hypotheses of no mediation effect.

Method

Organizations, sample characteristics, and procedure

The organizations participating in this study are four retail banks, labelled A to D in Table 1. These organizations are all large financial corporations, with national branch networks. They are strongly regulated by government, and have a strict industry code of conduct. They serve a similar mix of private and corporate customers, and provide a similar range of products and services, such as current and savings accounts, loans, mortgages, insurance, business advisory services, and automated cash withdrawal through their branch networks. Bank C's operations are concentrated in the Republic of Ireland, and those of the other three banks in mainland UK.

The business unit for this study is the bank branch. Levels of customer satisfaction, sales performance, and staffing for the branches were derived from central bank records, and attitude and climate measures were derived from employee opinion surveys conducted in each bank. These surveys were completed anonymously by all grades of branch staff, and were designed to monitor a broad range of employee opinion. The surveys were administered to a total of 55,200 employees, and produced

Table 1. Data sample

| Bank | No. of survey respondents[a] | Response rate (%) | Number of branches with valid data[a] | | |
			Employee attitudes	Sales achievement	Customer satisfaction
A	9,996	49.8	510	434	–
B	5,680	80.4	315	310	310
C	2,922	81.5	135	132	121
D	7,511	81.6	447	412	408

Note. Dashes indicate no data were available.
[a]Branches returning less than 10 employee survey questionnaires were excluded.

37,054 returns, an overall response rate of 67%. Survey respondents were: 73% female and 26% male (1% unspecified), 77% clerical or supervisory grade, 19% managerial or executive grade, 3% in other grades (1% unspecified). The average tenure was 11.4 years, with 13% of employees having less than 1 year of service, and 30% having 20 or more years service. To ensure an adequate level of group mean reliability at the branch level, branches returning less than 10 completed questionnaires were eliminated from the analysis, giving a total of 26,109 respondents, from 1,407 branches. The analysis sample is summarized in Table 1.

Note that data from Bank A have been reported elsewhere (Gelade & Ivery, 2003). That study examined the effects of HRM practices on performance, and the unit of analysis was the branch director group (BDG), a regional group of branches. In this bank, customer satisfaction is reported only at the BDG level, and not for individual branches, and so cannot be used in the present study. Other cases of missing data in Table 1 are due to branch closures or branch mergers during the study period, or to incomplete branch records.

Scale construction

The use of customised surveys with somewhat different sets of questions in each bank restricted the attitude dimensions that were available for analysis. Scale construction was thus based on the subset of items that were common to all four surveys. Responses to each survey item were recorded on a 5-point Likert scale, with end-points labelled *agree* and *disagree*, and were scored from 1 to 5, with higher numbers indicating increased levels of favourable responding.

Scale construction began with examination of individual (employee) responses. Candidate scales were identified by subjecting the common survey items to principal components analysis with oblimin rotation. (EFA available on request.) The four scales and the scale items are shown in Table 2.

The items in Table 2 were subjected to confirmatory factor analysis using the AMOS modelling programme (Arbuckle, 1999). We first examined a four-factor model, in which each scale item loaded only on its appropriate latent variable, and the latent variables were free to correlate. The χ^2 statistic for this model was highly significant ($\chi^2 = 17,613, df = 129$). Although this indicates significant discrepancies between the model predictions and the observed data, χ^2 increases with sample size, and in large samples, even small discrepancies may be statistically significant. It is, therefore, usual to

Table 2. Scales and Items

	ICCI	ICC2	r_{wg}	Reliability	
				α_1	α_2
Commitment	.17	.80	.72	.88	.92
I am proud to be associated with this company					
I would recommend this company as a good organization to work for.					
Taking everything into account, how satisfied are you with < name of company > as an organization to work for?					
Team Climate	.15	.77	.73	.76	.79
Most of the time it is safe to speak up in my team.					
People are treated with respect in my team, regardless of their job.					
The people in my team are willing to help each other, even if it means doing something outside their usual duties.					
Morale in my team is currently high.					
My manager involves me in planning the work of my team.					
Job Enablers	.15	.77	.75	.73	.79
The training I have received has prepared me well for the work I do.					
There are sufficient opportunities for me to receive training to improve my skills in my current job.					
I have sufficient authority to do my job well.					
Priorities or work objectives are changed so frequently I have trouble getting my job done. (Reversed)					
There are usually enough people in my team to handle the workload.					
Support Climate	.17	.79	.84	.81	.86
This company provides employees with the necessary information and resources to manage their own careers effectively.					
I believe I have the opportunity for personal development in this company.					
Local management do an excellent job of keeping us informed about matters affecting us.					
I have a clear understanding of the goals and objectives of: this company as a whole.					
How good a job is top management doing in providing leadership?					

Note. α_1 = Cronbach's alpha (individual level); α_2 = Cronbach's alpha (branch level).

assess fit by indicators that are relatively independent of sample size, such as the root mean square error of approximation (RMSEA; Browne & Cudeck, 1993), the comparative fit index (CFI; Bentler, 1990), and the Tucker–Lewis index (TLI; Bentler & Bonett, 1980). An RMSEA value of .05 or below indicates a good fit, and a value of .08 or below indicates an acceptable fit. For the CFI and the TLI, values above .9 are usually

taken as acceptable. The fit indicators for the four-factor model were satisfactory (CFI = .93, TLI = .92, RMSEA = .07). By comparison, the fit of a single factor model was poor ($\chi^2 = 34,824$, $df = 135$, CFI = .85, TLI = .83, RMSEA = .09). A χ^2 difference test of model improvement provided strong evidence in favour of the four-factor model (χ^2 difference = 17,211, $df = 6$, $p < .001$). A more conservative test of discriminability is to compare a four-factor model with a three-factor model in which the two most highly correlated scales are combined. The three-factor model proved to be of borderline fit ($\chi^2 = 23,709$, $df = 132$, CFI = .90, TLI = .89, RMSEA = .08), and a χ^2 difference test showed that the four-factor model was a significantly better fit (χ^2 difference = 6,095, $df = 3$, $p < .001$).

Our research question seeks to correlate perceptions and attitudes measured at the individual (employee) level of analysis with outcomes that exist only at the group (branch) level of analysis. As Klein and Kozlowski (2000, p. 7) have argued, an adequate account of organizational behaviour should recognize both the individual and group levels, and we therefore suggest that a multilevel approach to construct validation is appropriate here. We thus repeated the confirmatory factor analyses in a multilevel setting. In this approach, the items in a scale are allowed to load on two congeneric latent variables per factor, one representing the individual (employee) level, and one representing the contextual (branch) level, with the model parameters being estimated for both levels simultaneously. Model parameters were estimated using the maximum likelihood procedure of the Mplus programme (Muthén & Muthén, 2002).

In the single factor model, each item was allowed to load on one employee level factor and on one branch level factor; in the three- and four-factor models, each item loaded on its own employee level factor, and on its own branch level factor, with intercorrelations allowed between the factors at each level. The results were similar to the individual level analyses. The four-factor model was a good fit to the data ($\chi^2 = 11,681$, $df = 258$; CFI = .93; TLI = .92; RMSEA = .05) and the single-factor model was a poor fit with both the CFI and TLI failing to reach the criterion of acceptability ($\chi^2 = 23,607$, $df = 270$; CFI = .86; TLI = .84; RMSEA = .06). The fit of the three-factor model was borderline ($\chi^2 = 15,854$, $df = 264$; CFI = .91; TLI = .89; RMSEA = .05), and although this model could be considered statistically acceptable, we judged the four-factor model to be preferable on grounds of both its fit indices and psychological interpretability.

The first scale in Table 2 (commitment) is an employee attitude scale. Two of its three items belong to the commitment subscale of Cook and Wall's (1980) organizational commitment scale. The other three scales in Table 2 are climate measures, two of which can be related to climate dimensions frequently reported in the organizational literature. Job enablers corresponds to task support (Kopelman *et al.*, 1990), and team climate to the work group cooperation warmth and friendliness factor identified by James and James (1989). The remaining scale is more heterogeneous, and although clearly a climate measure, appears to comprise elements of a number of different climate dimensions. Employees scoring high on this scale feel well-informed about their organization, and say that it provides sufficient information and opportunity to build their careers. They also say that top management provides good leadership. We called this the Support climate scale.

Our interest here is primarily in branch mean scores, not in individual scores, because the branch is the level at which performance is measured. Our next group of analyses thus addressed aggregation issues. Aggregation of employee scores to the branch level is substantively justifiable because the branch is a discrete business unit, with its own

management and supervisory structure, and employees in the branch interact on a daily basis. It can, therefore, be argued that the variables formed by aggregating individual perceptions to the branch level are meaningful psychological constructs that express the common experience and shared perceptions of a discrete work group. However, it is often argued that aggregation requires statistical as well as substantive justification; specifically, that attitudinal measures should not be aggregated to group level unless there is a minimum degree of consensus amongst the respondents in the group (e.g. Bliese, 2000; James, 1982; Joyce & Slocum, 1984).

The psychometric properties of the candidate scales were thus assessed by a number of analyses which are summarized in Table 2. First, ICC and r_{wg} values for each scale were calculated to determine whether aggregation to the branch level was statistically justifiable. ICC1 and ICC2 statistics (Bartko 1976; Shrout & Fleiss, 1979) are commonly used in organizational research to ascertain whether it is statistically justifiable to aggregate individual scores to the group level (Bliese, 2000). ICC1, the intra-class correlation, is a measure of within-group consensus, and the median value in organizational research is typically .12 (James, 1982). ICC2 is the reliability of the group mean that is formed when individual scores are aggregated. Its value depends on the degree of group consensus and the average group size, and common practice suggests a value equal to or greater than .70 is acceptable (Klein *et al.*, 2000, p. 518). For all the scales, both the ICC1 and ICC2 values in Table 2 are comfortably in excess of their respective lower bounds. To determine the significance of the ICC1 values, we also performed a one-way ANOVA on each scale. All the ANOVAs had significant ($p < .001$) between-branch effects, indicating the ICC1 values are significantly different from zero. Next, we calculated the uniform distribution r_{wg} (James, Demaree, & Wolf, 1984) for each scale. r_{wg} is a measure of inter-rater agreement derived by comparing the observed pattern of responses in a group to a random response pattern (usually a uniform distribution) representing zero within-group agreement, and the commonly recommended minimum for aggregation is .70. As shown in Table 2, r_{wg} ranges from .72 for the Commitment scale to .84 for the Support scale. Based on the ICC and r_{wg} results, we conclude that aggregating individual employee scores to the branch level is statistically justifiable.

Next, internal consistency reliabilities (Cronbach's alpha) were calculated at both the branch and employee level. As shown in Table 2, all reliabilities exceed the commonly accepted minimum of .7, indicating satisfactory degrees of internal consistency at both levels.

Overall, these results confirm that the scales recovered from the employee survey data exhibit satisfactory levels of internal consistency, that aggregation to the branch level is justifiable on statistical grounds, and that the scales are statistically distinguishable from each other. In subsequent analyses, employees' scale scores are calculated by averaging the scores of the scale items, and employee scores are then averaged within branch to produce the branch level scores.

Branch measures of performance

Sales achievement

Bank branches operate in a variety of local environments. Some branches are located in wealthy communities and some in deprived communities. Some are rural, some are suburban, and some are located in busy metropolitan areas. These differences present a

range of business opportunities, and place limits on the performance levels that different branches can be expected to achieve. For these reasons, senior bank management assess and reward branch sales performance against individually calculated branch targets. Although setting targets involves a degree of subjective judgment, an important advantage for this study is that performance measured in this way compensates for differences in branch size and location, and, more importantly, for differences in the local micro-economy surrounding the branch, which are otherwise difficult to measure and to control for statistically. Sales achievement was, therefore, measured by actual branch sales as a percentage of target. This performance measure is precisely what branch managers are attempting to maximize, and, therefore, has operational validity.

Different amounts of sales data were provided by the participating organizations as follows: Bank A, 4 consecutive months; Bank B, 1 quarter (aggregated); Bank C, 1 year (aggregated); Bank D, 4 consecutive quarters. Reliability estimates for sales achievement were derived in two steps. First, we estimated the reliability of the sales data for a single time period (r_1), using the method recommended by Schmidt and Hunter (1996, Scenario 23). Schmidt and Hunter's method requires repeated-measures data (which were available for Banks A and D), and takes into account that some real changes may occur over time. Next, we estimated the reliability of sales achievement for each bank by inserting r_1 and the appropriate number of periods into the Spearman–Brown prophecy formula. Using Bank A's data as a base, r_1 (single month) was .54, giving sales achievement reliabilities for Banks A to D, respectively, of .82, .78, .93, .93. Using Bank D's data as a base, r_1 (single quarter) was .81, giving reliabilities for Banks A to D of .85, .81, .94 and .94, respectively. It may be concluded that the reliability of the sales measure used in this study is satisfactory.

On average, sales measurement post-dated survey administration by approximately 4 months.

Customer satisfaction
All the banks in the study monitor customer satisfaction closely, and employ external research firms to conduct periodic, structured telephone surveys with existing branch customers. Typically responses are obtained from up to 100 customers per branch. Because customers of rural branches reliably give more favourable responses, the raw scores are usually adjusted (by the research firms) according to the type of branch to avoid penalizing urban branches. In this study, we used the adjusted scores provided by the participating organizations.

Although each bank uses different questions in its customer survey, common topics include overall satisfaction and loyalty, efficiency, and the friendliness and courtesy of branch staff. In most cases, only branch level mean scores for overall customer satisfaction were provided by the participating organizations, limiting our ability to assess psychometric adequacy in this domain. However, for Bank C individual customer scores were available, and here we found that an overall satisfaction measure, consisting of four subscales: general satisfaction (e.g. *You feel happy recommending the bank to a friend*); Trust (e.g. *You trust the staff at your branch to do what is best for you*); Reliability (e.g. *Requests are carried out right first time*); and Professionalism (e.g. *Staff have the knowledge to deal with any queries you have*) had an ICC1 of .06, and an ICC2 of .86. Based on the four subscale scores, the overall measure had a Cronbach's alpha reliability of .87. For Bank B, branch mean scores were available for eight subscales, yielding a Cronbach's alpha reliability of .92 for overall customer satisfaction

(at the branch level of analysis). Furthermore, in a sample of bank customer satisfaction data not reported here, we have found high stability over a quarterly period, correlations between branch mean monthly scores ranging from .89 to .98. These results suggest that the customer satisfaction scores tend to be internally consistent and reliable.

On average, customer satisfaction measurement post-dated survey administration by 4 months.

Branch size

Branch size was measured by staffing level, and was included as a potential control variable. Many bank branches employ a mixture of part-time and full-time staff, and the staffing level of a branch is, therefore, expressed in terms of the number of full-time equivalent employees (FTE). To improve the distributional properties of this variable we defined branch size as the logarithm of the FTE.

Descriptive statistics and correlations

Because different customer satisfaction instruments are used in each bank, customer satisfaction scores are not comparable across datasets. Similarly, potential differences in target-setting procedures, such as different degrees of leniency, and different ways of calculating sales, preclude direct comparison of sales achievement scores. Only the employee opinion measures and branch size are directly comparable across banks. For these reasons, simply combining the data samples and calculating an overall correlation between, say, sales achievement and an attitude score would produce biased results. The correlations reported below were, therefore, derived using the fixed effects procedure for averaging correlations described in Hedges and Olkin (1985). In this procedure, the mean correlation across k samples of size n_k is calculated from the equation:

$$\bar{Z} = \frac{\overset{k}{\Sigma} z_k \cdot df_k}{\overset{k}{\Sigma} df_k}$$

where df_k are the degrees of freedom (i.e. $n_k - 3$), and z_k are the Fisher-transformed correlations, for each sample. The mean correlation is then the inverse Fisher transform of $\bar{Z}$, with standard error $\sqrt{1/\overset{k}{\Sigma} df_k}$. Significance is assessed by dividing the mean correlation by its standard error to give a z-score whose significance is determined by reference to the normal distribution.

Results

Descriptive statistics and correlations are reported in Table 3.

Consistent with both expectation and previous research, branches with favourable employee attitude and climate scores have elevated levels of customer satisfaction and sales achievement, and branches with higher levels of customer satisfaction also have stronger sales. In larger branches, employee attitudes are slightly more negative, climate evaluations slightly less favourable, and performance levels are slightly lower. However, partialling out branch size made a negligible difference to the correlations between attitudes/climate, customer satisfaction, and sales.

Table 3. Descriptive Statistics and Correlations

|	1	2	3	4	5	6	7
1. Commitment	—						
2. Team climate	.72***	—					
3. Job enablers	.73***	.75***	—				
4. Support climate	.82***	.71***	.76***	—			
5. Sales achievement	.31***	.22***	.22***	.24***	—		
6. Customer satisfaction	.21***	.23***	.19***	.17***	.14***	—	
7. (Log) Branch size	− .16***	− .16***	− .07*	− .17***	− .10***	− .09**	—
Branch mean	3.40	3.47	3.23	3.62	—	—	23.8
SD	0.50	0.43	0.39	0.39	—	—	15.2

*p < .02, **p < .01, ***p < .001.

Note. Logarithmic branch size used for correlations; raw branch size used for mean and *SD*. Descriptive statistics for sales achievement and customer satisfaction omitted because of measurement differences between banks.

Structural model

In this section, we develop a structural model of branch performance that integrates the service profit chain with the framework models of organizational behaviour proposed by Ostroff and Bowen (2000) and Kopelman *et al.* (1990).

In the present study, teamwork climate, job enablers, and support climate are organizational climate variables, commitment is an employee attitude, and customer satisfaction and sales achievement are organizational performance measures. In accordance with the service profit chain hypothesis, customer satisfaction is hypothesized to mediate the relationship between commitment and sales achievement. The resulting structural model is illustrated in Fig. 1.

Following the usual conventions, observed variables are depicted as rectangles, and latent (unobserved) variables as circles. Paths *a*, *b*, and *c* in Fig. 1 represent the service profit chain paths that are the primary focus of this paper. To ensure the model was identified (solvable), the path coefficients from the error variance components were set to 1, and the scale of the latent climate variable was fixed by setting the loading of support climate to 1.
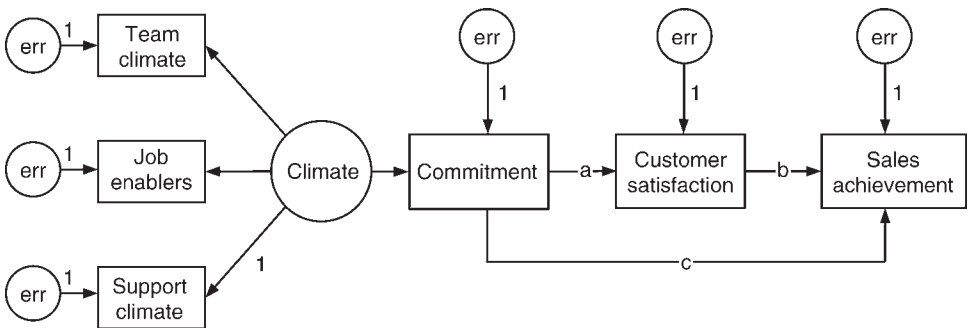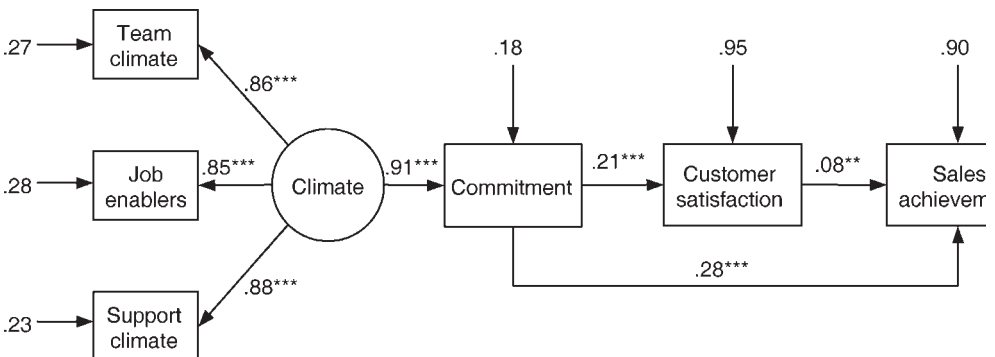

Note err = Error variance

Figure 1. Structural model of the service profit chain.

Three different models were estimated using the maximum likelihood estimation procedure of the AMOS modelling programme. Model 1 was a multi-group model, in which each group was a different bank. In a multi-group model, the model parameters are allowed to be different for each group, but only one overall set of fit measures is produced. Differences in the path coefficients for each group indicate the extent of between-group variation. To estimate a multi-group model, observations are needed on each variable for each group. Therefore, Bank A was excluded from this analysis. Model 2 was the same as Model 1, except that corresponding service profit chain paths were constrained to equality across the three groups. Thus, path *a* was constrained to be the same for Bank B, Bank C and Bank D, as was path *b* and path *c*. Comparing the fit measures of Model 1 and 2 allows a formal test of the hypothesis that the service profit chain is invariant across the three groups. Specifically, if the fits of the constrained and unconstrained models are not significantly different, it can be concluded that there are no significant differences amongst the service profit chains in the three groups. On the other hand, if the fit of the constrained model is significantly worse than the fit of the unconstrained model, the null hypothesis of invariance across groups is not supported. Finally, Model 3 was estimated using data for banks B, C, and D, combined into a single group. The larger sample size here has the advantage of increased statistical power. As discussed previously, however, customer satisfaction and sales achievement are not directly comparable across banks, so for Model 3, all the observed variables were standardized within bank before estimating the model parameters. Figure 2 shows the results for Model 3.

Parameter estimates and fit indices for all three models are reported in Table 4.

The fit indices for Model 1 indicate an excellent fit between the model and the observed data. Inspection of the path coefficients in Model 1 shows a similar pattern of results in each group. The indicators of the latent climate variable have consistently strong loadings, indicating the measurement part of the model is satisfactory. Furthermore, the path between commitment and sales achievement is consistently stronger than the path between commitment and customer satisfaction, and the path from customer satisfaction to sales achievement is consistently weak. Comparison of model χ^2 for Models 1 and 2 shows that constraining the service profit chain paths to

**p<.02, ***p<.001 Note : N = 837. Fit statistics are reported in Table 4.

Figure 2. Structural Model of the service profit chain. Standardized path coefficients and error variances.

Table 4. Parameters and fit indicators for structural model

			Standardized path coefficients			
			Model 1			Model 2	Model 3
			Bank B (N = 310)	Bank C (N = 120)	Bank D (N = 407)		B,C,D (N = 837)
Model Parameters							
Climate	→	Team climate	.89***	.81***	.84***		.86***
Climate	→	Job enablers	.89***	.84***	.82***		.85***
Climate	→	Support climate	.89***	.85***	.87***		.86***
Climate	→	Commitment	.93***	.90***	.89***		.91***
Commitment	→	Customer satisfaction	.24***	.19*	.19***	.21***	.21***
Customer satisfaction	→	Sales achievement	.10	.16	.05	.08**	.08**
Commitment	→	Sales achievement	.29***	.33***	.26***	.28***	.28***
Fit Indicators							
χ^2			56.4***			59.2***	48.6***
df			24			30	8
CFI			.99			.99	.99
TLI			.98			.98	.97
RMSEA			.04			.03	.08
Model 1-Model 2 χ^2 Change (*df*)						2.7 (6) *ns*	

CFI = Comparative fit index; TLI = Tucker–Lewis index; RMSEA = Root mean square error of approximation.
*$p < .05$, **$p < .02$, ***$p < .001$.

equality across the three banks produces little change in fit. Because Model 2 is nested within Model 1, the significance of this change in fit can be assessed by the difference in χ^2 of the two models. As shown in Table 4, χ^2 increases by only 2.7 for an increase in six *df*. This change is not significant ($p = .84$), suggesting that the service profit chain is invariant within the three banks. Finally, the parameters of Model 3 are similar to those for Models 1 and 2, the only difference of note being that the increased sample size produces a path between customer satisfaction and sales achievement that is statistically significant.

Mediation effects

The effect of customer satisfaction as a mediator of the attitude–sales relationship may be inferred from the values of the path coefficients in Fig. 2. However, the standard procedure for assessing mediation effects in organizational research is Baron and Kenny's (1986) procedure, and because this is familiar to most researchers, we adopt that treatment here. This procedure requires the estimation of two regression equations. In the first equation, the outcome variable (in this case sales achievement) is regressed on the initial variable (commitment). In the second equation, the outcome variable is regressed simultaneously on both the initial variable and the mediator (customer satisfaction). The mediation effect is defined as the reduction in the effect of the initial variable on the outcome when the mediator is included in the regression (i.e. the coefficient of the initial variable in the first regression equation minus the coefficient of the initial variable in the second regression equation.)

Mediation effects for customer satisfaction were calculated for each bank separately and in combination. Bank A was excluded from these calculations, as it has no customer satisfaction scores. MacKinnon, Lockwood, Hoffman, West, and Sheets (2002) have shown that the Sobel Test recommended by Baron and Kenny (1986) for testing the significance of the mediation effect has low statistical power. Therefore, we assessed significance by a bootstrapping procedure (2,000 replications) to determine the 95% confidence intervals around the mean mediation effect. A confidence interval that did not span zero indicated a statistically significant effect.

The results for Banks B, C, and D are shown in Table 5 as Analyses 1, 2 and 3, respectively. Analysis 4 used the combined sample. For this analysis, all variables were standardized within bank.

The R^2 values indicate that, taken together, employee attitudes and customer satisfaction account for about 10% of the variance in branch sales performance. Mediation effects are uniformly small in each bank individually, and for the combined sample.

The observed mediation effect fails to reach statistical significance for any single bank, but just reaches significance for the combined data in Analysis 4. Including branch size as a control variable produces similar results. We conclude that the null hypothesis of no mediation can be tentatively rejected, but only when all the branch data are combined. More importantly, the percentage mediation effect (change in β divided by β) in these analyses is about 5%, which seems too small to be of much practical significance.

Discussion

Many previous studies of business unit performance have been restricted to a single organization, raising the possibility of results bias due to organization-specific factors, and limiting the extent to which study conclusions may be generalized. A major strength of this study is that different organizations were sampled, reducing the possibility that the results are biased by unique organizational factors.

Table 5. Hierarchical regression analysis for effects of commitment and customer satisfaction on sales achievement.

Analysis number	Bank	N	Variables	Step 1 β	Step 2 β
1	B	310	1. Commitment	.31***	.29***
			2. Customer satisfaction		.10
			β change		− .023 (ns)
			R^2	9.7%	10.6%
2	C	120	1. Commitment	.34***	.33***
			2. Customer satisfaction		.16
			β change		− .007 (ns)
			R^2	11.6%	15.6%
3	D	407	1. Commitment	.27***	.26***
			2. Customer satisfaction		.05
			β change		− .010 (ns)
			R^2	7.3%	7.5%
4	B,C,D	837	1. Commitment	.30***	.28***
			2. Customer satisfaction		.08*
			β change		− .017*
			R^2	8.8%	9.5%

*$p < .05$, ***$p < .001$.

The correlations of employee attitudes and climate evaluations with customer satisfaction and sales performance reported here are consistent with previous research at the business unit level of analysis. Favourable attitudes and favourable climate evaluations are associated with elevated levels of customer satisfaction and sales.

To illustrate the commercial value of these effects, we re-express them in terms of the notional revenues of a typical (but hypothetical) UK bank, called GBBank. GBBank employs 20,000 staff in 2,000 branches serving 16 million customers, and has annual branch sales of £2.5 billion.

In the present dataset, regressing sales achievement on commitment for each of the four banks, and weighting the standardized regression coefficients by the number of branches in each sample yields an average value of .31; that is, an increase of one *SD* in commitment is associated with a .31 *SD* increase in sales achievement. The *SD* of sales achievement is 19.5% of its mean, so a one *SD* change in commitment is equivalent to a 6% increase in average sales. Replicated across the network, this equates to a £150 million increase in GBBank's annual revenues. A one *SD* rise in commitment would be somewhat difficult for GBBank's managers to envisage, however, and probably even more difficult for them to achieve in practice.

Therefore, we assigned each of the 1,407 branches to one of 10 bands according to their overall employee score (average of the scores on commitment and the three climate variables). Within each bank, the 10% of branches with the lowest scores were assigned to Band 1, the next lowest 10% to Band 2 and so on. Regressing sales achievement on band number within each dataset and computing an *N*-weighted regression coefficient gave a value of 1.9% per band. That is, sales against target increases on average by 1.9% in each successive band. Moving every branch in GB-Bank a single step up this ladder would equate to an overall increase of £47 million in sales. Such additional revenues would only be generated in practice, of course, if the relationship was strictly causal.

The results provide only limited support for the service profit chain theory. In accordance with the predictions of the theory, this study finds that in the overall sample, customer satisfaction mediates the relationship between employee attitudes and sales performance. However, the effect size was small, and when the banks were considered individually, the effect was non-significant. This implies that the service profit chain is of limited practical value in explaining the association between favourable employee experiences and enhanced business unit sales. The fact that the service profit chain paths in the structural model were invariant across banks reinforces this conclusion.

These findings should not be interpreted to mean that customer satisfaction is unimportant, or irrelevant, to organizational performance. First, the data were analysed at the organizational subunit level, not the organizational level, and the results do not, therefore, speak to differences in customer satisfaction amongst organizations. Secondly, different processes may come into play when the level of analysis is shifted upwards to the whole organization. To see this, consider the findings of Verhoef *et al.* (2002). These authors found that although satisfied customers of an insurance company were no more likely to make additional purchases than dissatisfied customers, they did make substantially more customer referrals (positive recommendations of the company to others). This suggests that satisfied customers are an important organizational asset. However, in a multi-business unit company, the main beneficiaries may well be other business units in the organization, and not necessarily those where the satisfaction was originally generated.

Limitations

The limitations of this study should also be noted. In particular, although the employee survey data were collected prior to the customer satisfaction and sales data, the cross-sectional nature of the research design limits the extent to which causal inferences are justifiable. Secondly, the correlations between customer satisfaction and sales may have been attenuated by the closeness in time of their respective data collection windows. It is possible that sales figures for a later period would have shown a stronger relationship with customer satisfaction. Thirdly, the employee attitude questions used in this study were derived from archival data, and it was not possible to examine potentially interesting constructs such as service climate (Schneider *et al*., 1998). Fourthly, although we found evidence for a four-factor model of employee opinion, it should be noted that the scale intercorrelations were rather high (average correlation .63 at the individual level, .75 at the branch level). This limits the degree to which we can posit the existence of completely separable constructs, especially at the branch level.

Directions for future research

The mediation model examined here is only one of many similar models that could theoretically link employee attributes to financial outcomes at the business unit level, and the failure to find large mediation effects prompts a search for alternative models with greater explanatory power. For example, customer satisfaction is not the only intervening variable that could theoretically explain the shared variance between attitudes or climate and financial performance. Alternative intervening variables could include employee behaviours internal to the customer encounter or external to it.

One example of an employee behaviour external to the customer encounter is quitting. The relationship between employee attitudes and staff turnover has been well

documented (Hellman, 1997; Hom, Caranikas-Walker, Prussia, & Griffeth, 1992; Tett & Meyer, 1993), and business units where attitudes are relatively unfavourable are, therefore, likely to experience a comparatively high level of turnover. This has two consequences (Gelade & Ivery, 2003). First, such business units tend to have below strength staffing levels, which may reduce levels of customer responsiveness (e.g. extended telephone waiting and queuing times). The second consequence of turnover (even if vacancies are immediately filled) is to reduce the average level of expertise and experience in the unit. Both of these factors may contribute to reduced customer satisfaction levels, and because they reduce the skilled resources available to the business unit, they may also limit its capabilities as an effective sales unit. Thus, business units where employee attitudes are favourable may perform better because they maintain a relatively intact and experienced sales force.

Aspects of the sales process itself might also influence financial performance. It is likely that satisfied and motivated employees are more effective in promoting an organization's products to potential purchasers than are dissatisfied employees. Bettencourt, Gwinner, and Meuter (2001), for example, have reported that job satisfaction is positively related to a variety of employee loyalty behaviours, including the generation of goodwill for the organization, and promotion and recommendation of its products and services. Likewise, the positive affect radiated by satisfied employees may also influence customer perceptions of the organization's products. Howard and Gengler (2001), for instance, demonstrated that exposing receivers to happy senders they liked, resulted in receivers having a positive attitudinal bias toward a product. In either case, employees who feel positive about their job and their workplace would be likely to be more productive in a sales encounter. An organization's products and services are not merely bought by its customers, they are actively sold by its employees. Therefore, it could be argued that the selling behaviour of a satisfied employee influences business unit sales at least as much as does the inclination to purchase of a satisfied customer. Testing this conjecture might be a productive avenue for future research in this area.

As pointed out by an anonymous referee, both employee attitudes ('will') and employee capability ('can') are components of motivated employee behaviours, which affect business unit performance. Heskett, Sasser, and Schlesinger (1997) have stressed the importance of training customer-facing employees, but employee capability has not to our knowledge been examined as an initial variable in the employee–customer–performance chain. However, a reanalysis of data reported in Gelade and Ivery (2003) does suggest that customer satisfaction mediates the relationship between employee capability and business unit sales. In a sample of 137 branch clusters belonging to Bank A, analysis of the correlations between customer satisfaction, sales, and professional development (the percentage of staff certified as competent in providing customer service) shows that customer satisfaction accounts for 43% of the variance shared between professional development and sales. Similarly, customer satisfaction accounts for 62% of the variance shared between staffing levels and sales.

A model of business unit performance, integrating climate, attitudes, turnover, employee capability, staffing levels, and incorporating a service profit chain is beyond the scope of this study. However, based on the above discussions, we may speculate on some of the main interconnections as follows. Climate, and employee capability, both influenced by HR policies, would be the major antecedents, and climate would influence attitudes. Turnover would be an intervening variable, linking (unfavourable) attitudes to reduced employee capability at the business unit level, and to reduced

staffing levels. Staffing levels and employee capability would influence sales both directly, and indirectly via the mediating effect of customer satisfaction. Whether attitudes would continue to have a direct relationship with sales, once all these intervening variables have been included, cannot be predicted.

Testing such complex models of business unit functioning poses many problems of data collection, analysis and interpretation, but in the future we would like to see psychologists collaborating with economists, operational researchers, and organizations to understand better how people and performance are related.

Acknowledgements

References

Allen, N. J., & Grisaffe, D. B. (2001). Employee commitment to the organization and customer reactions: Mapping the linkages. *Human Resource Management Review, 11,* 209-236.

Alvarez, F. T. (1998). Prediccion del compromiso del personal a partir del analisis del clima organizacional. /Prediction of employees' commitment through the analysis of organizational climate. *Revista de Psicologia del Trabajo y de las Organizaciones*, *14*, 333-344.

Anderson, E. W., & Sullivan, M. W. (1993). The antecedents and consequences of customer satisfaction for firms. *Marketing Science*, *12*, 125-143.

Arbuckle, J. L. (1999). *AMOS 4.01. [Computer program]*, 01. Chicago, IL: SmallWaters.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51,* 1173-1182.

Bartko, J. J. (1976). On various intraclass correlation reliability coefficients. *Psychological Bulletin*, *83*, 762-765.

Bentler, P. M. (1990). Comparative fit indices in structural models. *Psychological Bulletin*, *107*, 238-246.

Bentler, P. M., & Bonnet, D. G. (1980). Significance tests and goodness-of-fit in the analysis of covariance structures. *Psychological Bulletin*, *88*, 588-606.

Bernhardt, K. L., Donthu, N., & Kennett, P. A. (2000). A longitudinal analysis of satisfaction and profitability. *Journal of Business Research, 47,* 161-171.

Bettencourt, L. A., Gwinner, K. P., & Meuter, M. L. (2001). A comparison of attitude, personality, and knowledge predictors of service-oriented organizational citizenship behaviors. *Journal of Applied Psychology, 86,* 29-41.

Bliese, P. D. (2000). Within-group agreement, non-independence and reliability: implications for data aggregation and analysis. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizational psychology* (pp. 349-381). Francisco, CA: Jossey-Bass.

Bolton, R. N. (1998). A dynamic model of the duration of the customer's relationship with a continuous service provider: The role of satisfaction. *Marketing Science*, *17*, 45-65.

Bolton, R. N., & Lemon, K. N. (1999). A dynamic model of customers' usage of services: Usage as an antecedent and consequent of satisfaction. *Journal of Marketing Research, 36,* 171-186.

Borucki, C. C., & Burke, M. J. (1999). An examination of service-related antecedents to store performance. *Journal of Organizational Behavior, 20,* 943-962.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162).

Cook, J., & Wall, T. D. (1980). New work attitude measures of trust, organizational commitment and personal need non-fulfilment. *Journal of Occupational Psychology, 53*, 39–52.

Gelade, G., & Ivery, M. (2003). The impact of human resource management and work climate on organizational performance. *Personnel Psychology, 56*, 383–404.

George, J. M., & Bettenhausen, K. (1990). Understanding prosocial behaviour, sales performance, and turnover: A group-level analysis in a service context. *Journal of Applied Psychology, 75*, 698–709.

Gunter, B., & Furnham, A. (1996). Biographical and climate predictors of job satisfaction and pride in organization. *Journal of Psychology, 130*, 192–208.

Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business–unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology, 87*, 268–279.

Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1993). Emotional contagion. *Current Directions in Psychological Science, 2*, 96–99.

Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. Orlando, FL: Academic Press.

Hellman, C. M. (1997). Job satisfaction and intent to leave. *Journal of Social Psychology, 137*, 677–689.

Hennig-Thurau, T., & Klee, A. (1997). The impact of customer satisfaction and relationship quality on customer retention: A critical reassessment and model development. *Psychology & Marketing, 14*, 737–764.

Heskett, J. L., Sasser, W. E., Jr, & Schlesinger, L. A. (1997). *The service profit chain*. New York: Free Press.

Hom, P. W., Caranikas-Walker, F., Prussia, G. E., & Griffeth, R. W. (1992). A meta-analytical structural equations analysis of a model of employee turnover. *Journal of Applied Psychology, 77*, 890–909.

Howard, D. J., & Gengler, C. (2001). Emotional contagion effects on product attitudes. *Journal of Consumer Research, 28*, 189–201.

Ittner, C., & Larcker, D. F. (1998). Are non-financial measures leading indicators of financial performance? An analysis of customer satisfaction. *Journal of Accounting Research, 2*, 138–144.

James, L. R. (1982). Aggregation bias in estimates of perceptual measures. *Journal of Applied Psychology, 67*, 219–229.

James, L. A., & James, L. R. (1989). Integrating work environment perceptions: Exploration into the measurement of meaning. *Journal of Applied Psychology, 74, 739–751*.

James, L. R., Demaree, R. G., & Wolf, G. (1984). Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology, 69*, 85–98.

Johnson, J. J., & McIntye, C. L. (1998). Organizational culture and climate correlates of job satisfaction. *Psychological Reports, 82*, 843–850.

Johnson, J. W. (1996). Linking employee perceptions of service climate to customer satisfaction. *Personnel Psychology, 49*, 831–851.

Joyce, V. F., & Slocum, J. W. (1984). Collective climate: agreement as a basis for defining aggregate climate in organizations. *Academy of Management Journal, 27*, 721–742.

Klein, K. J., Bliese, P. D., Kozlowski, S. W. J., Dansereau, F., Gavin, M. B., Griffin, M. A., Hofmann, D. A., James, L. R., Yammarino, F. J., & Bligh, M. C. (2000). Multilevel analytical techniques: Commonalities, differences, and continuing questions. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizational psychology* (pp. 512–553). San Francisco, CA: Jossey-Bass.

Klein, K. J., & Kozlowski, S. W. (2000). A multilevel approach to theory and research in organizations. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizational psychology* (p. 7) San Francisco, CA: Jossey-Bass.

Kline, T. J., & Boyd, J. E. (1991). Organizational structure, context, and climate: Their relationships to job satisfaction at three managerial levels. *Journal of General Psychology, 118*, 305–316.

Kopelman, R. E., Brief, A. P., & Guzzo, R. A. (1990). The role of climate and culture in productivity. In B. Schneider (Ed.), *Organizational climate and culture*. San Francisco, CA: Jossey-Bass.

Koys, D. J. (2001). The effects of employee satisfaction, organizational citizenship behaviour and turnover on organizational effectiveness: A unit-level, longitudinal study. *Personnel Psychology, 54,* 101–114.

LaFollette, W. R., & Sims, H. P. (1975). Is satisfaction redundant with organizational climate? *Organizational Behavior & Human Decision Processes*, *13*, 257–278.

Leung, K. (1997). Relationships among satisfaction, commitment, and performance: A group-level analysis. *Applied Psychology: An International Review, 46,* 199–206.

Loveman, G. W. (1998). Employee satisfaction, customer loyalty and financial performance: An empirical examination of the service profit chain in retail banking. *Journal of Service Research*, *1*, 18–31.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variables effects. *Psychological Methods*, *7*, 83–104.

Mittal, V., Kumar, P., & Tsiros, M. (1999). Attribute-level performance, satisfaction and behavioural intentions over time: A consumption system approach. *Journal of Marketing*, *63*, 88–101.

Muchinsky, P. M. (1977). Organizational communication: Relationships to organizational climate and job satisfaction. *Academy of Management Journal*, *20*, 592–607.

Muthén, L. K., & Muthén, B. O. (2002). *Mplus 2.12.* [Computer program]. Los Angeles, CA: Muthén & Muthén.

Ostroff, C., & Bowen, D. E. (2000). Moving HR to a higher level. HR practices and organizational effectiveness. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizational psychology* (pp. 211–266). San Francisco, CA: Jossey-Bass.

Ostroff, C., Kinicki, A. J., & Clark, M. A. (2002). Substantive and operational issues of response bias across levels of analysis: An example of climate–satisfaction relationships. *Journal of Applied Psychology, 87,* 355–368.

Parker, C. P. (1999). A test of alternative hierarchical models of psychological climate: PC-sub(g), satisfaction, of common method variance? *Organizational Research Methods*, *2*, 257–274.

Patterson, M., Warr, R., & West, M. A. (2004). Organizational climate and company productivity: The role of employee affect and employee level. *Journal of Occupational and Organizational Psychology, 77,* 193–216.

Peters, T. J., & Waterman, R. H. Jr. (1982). *In search of excellence: Lessons from America's best-run companies*, 6. New York: Harper and Row, Ch. 6.

Pugh, S. D. (2001). Service with a smile: Emotional contagion in the service encounter. *Academy of Management Journal, 44,* 1018–1027.

Rucci, A. J., Kirn, S. P., & Quinn, R. T. (1998). The employee–customer–profit chain at Sears. *Harvard Business Review, Jan–Feb*, 83–97.

Ryan, A. M., Schmit, M. J., & Johnson, R. (1996). Attitudes and effectiveness: Examining relations at an organizational level. *Personnel Psychology, 49*, 853–882.

Schmidt, F. L., & Hunter, J. E. (1996). Measurement error in psychological research: Lessons from 26 research scenarios. *Psychological Methods*, *1*, 199–223.

Schmit, M. J., & Allscheid, S. P. (1995). Employee attitudes and customer satisfaction: Making theoretical and empirical connections. *Personnel Psychology, 48*, 521–535.

Schneider, B., & Bowen, D. E. (1985). Employee and customer perceptions of service in banks: Replication and extension. *Journal of Applied Psychology, 70, 423–433.*

Schneider, B., & Bowen, D. E. (1992). Personnel/human resources management in the service sector. In G. R. Ferris & M. K. Rowland (Eds.), *Research in personnel and human resources management*, (Vol. 10 pp. 1–30). Greenwich, CT: JAI.

Schneider, B., & Bowen, D. E.,Ehrhart, M.G., & Holcombe, K. M. (2000). The climate for service. In N. M. Ashkanasy, C. P. M. Wilderom & M. F. Peterson (Eds.), *Handbook of organizational culture and climate* (pp. 1–36). Thousand Oaks, CA: Sage.

Schneider, B., Parkington, J., & Buxton, V. (1980). Employee and customer perceptions of service in banks. *Administrative Science Quarterly*, *25*, 252–267.

Schneider, B., White,, & Paul, M. (1998). Linking service climate and customer perceptions of service quality: Test of a causal model. *Journal of Applied Psychology*, *83*, 150–163.

Schoenewolf, G. (1990). Emotional contagion: Behavioral induction in individuals and groups. *Modern Psychoanalysis*, *15*, 49–61.

Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin*, *86*, 420–428.

Simons, T., & Roberson, Q. (2003). Why managers should care about fairness: The effects of aggregate justice perceptions on organizational outcomes. *Journal of Applied Psychology, 88*, 432–443.

Tett, R. P., & Meyer, J. P. (1993). Job satisfaction, organizational commitment, turnover intention, and turnover: Path analyses based on meta-analytic findings. *Personnel Psychology*, *46*, 259–293.

Tornow, W., & Wiley, J. (1991). Service quality and management practices: A look at employee attitudes, customer satisfaction and bottom-line consequences. *Human Resource Planning*, *14*, 105–115.

Ulrich, D., Halbrook, R., Meder, D., Stuchlik, M., & Thorpe, S. (1991). Employee and customer attachment: Synergies for competitive advantage. *Human Resources Planning*, *14*, 89–103.

Verhoef, P. C., Franses, P. H., & Hoekstra, J. C. (2001). The impact of satisfaction and payment equity on cross-buying: A dynamic model for a multi-service provider. *Journal of Retailing*, *77*, 359–378.

Verhoef, P. C., Franses, P. H., & Hoekstra, J. (2002). *The effect of relational constructs on customer referrals and number of services purchased from a multi-service provider: Does age of relationship matter.* Journal of the Academy of Marketing Science, *30*, 202–216.

Watson, T. J., Jr. (1963). *A Business and its beliefs*. New York: McGraw-Hill.

Welsch, H. P., & LaVan, H. (1981). Inter-relationships between organizational commitment and job characteristics, job satisfaction, professional behavior, and organizational climate. *Human Relations*, *34*, 1079–1089.

Wiley, J. W. (1991). Customer satisfaction and employee opinions: A supportive work environment and its financial cost. *Human Resource Planning*, *14*, 117–127.

Wiley, J. W., & Brooks, S. M. (2000). The high-performance organizational culture. In N. M. Ashkanasy, C. P. M. Wilderom & M. F. Peterson (Eds.), *Handbook of organizational culture and climate* (pp. 177–191). Thousand Oaks, CA: Sage.

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioural consequences of service quality. *Journal of Marketing*, *60*, 31–46.