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Linking Employee Confidence to Performance: A Study of Self-Managing Service Teams

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The increasing implementation of self-managing teams (SMTs) in service delivery suggests the importance of developing confidence beliefs about a team's collective competence. This research examined causality in the linkage between employee confidence beliefs and performance for boundary-spanning SMTs delivering financial services. The authors distinguish between task-specific (i.e., team efficacy) and generalized (i.e., group potency) employee confidence, as well as between customer-based (i.e., customer-perceived service quality) and financial (i.e., service revenues) performance. They analyzed employee and customer survey data as well as financial performance data from 51 SMTs at two points in time using lagged analyses. The findings reveal divergent results for team efficacy and group potency, suggesting that team efficacy has reciprocal, causal relationships with service revenues and customer-perceived service quality. In contrast, group potency has no causal relationship with service revenues. Finally, customer-perceived service quality predicts group potency, whereas no evidence for the reverse effect is provided.

Keywords: *self-managing service teams; team efficacy; group potency; seemingly unrelated regressions; SUR*

Recent studies have shown that an increasing number of companies have begun to organize their service delivery

process around self-managing teams (SMTs; Batt 1999; de Jong, de Ruyter, and Lemmink 2004; Gilson, Shalley, and Blum 2001). Delegating managerial and task responsibilities to empowered groups of frontline employees results in more flexibility and adaptability in response to customer service needs and demands (Hartline and Ferrell 1996). Moreover, when teams develop certain norms regarding their flexibility in dealing with customers, this development affects customer service satisfaction (Deeter-Schmelz and Ramsey 2003). Because the emphasis in service marketing performance is changing from a focus on individuals to a focus on teams, a comprehensive understanding of the group-level determinants of service SMT performance is relevant for both academics and managers.

Consistent with recent theorizing about the empowerment of customer service workers (Hartline and Ferrell 1996; Spreitzer 1995), we suggest that when the principle of self-management has been successfully implemented in a work environment, team members will rely strongly on cognitions about their collective service competence. The increasing implementation of SMTs in service delivery suggests the importance of developing confidence beliefs about the team's collective competence (Gully, Joshi, Incalcaterra, and Beaubien 2002; Lee, Tinsley, and Bobko 2002). This study contributes to the marketing literature on the relationship between employee confidence beliefs and service performance by examining three important issues.

First, previous research has demonstrated that confidence beliefs about individual competence (i.e., self-efficacy) are a key determinant of marketing performance parameters, such as managerial decision making (Mittal, Ross, and Tsiros 2002), goal setting and sales performance (Brown, Cron, and Slocum 1998; Brown, Ganesan,

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and Challagalla 2001; Wang and Netemeyer 2002), and customer satisfaction (Westbrook 1980). For instance, Brown et al. (2001) reported that self-efficacy enhances the impact of information-seeking activities on role clarity and performance by salespeople. Similarly, Mittal et al. (2002) showed that when marketing decision makers feel more confident, they are more willing to take risks and invest resources in negatively framed rather than positively framed situations. In contrast to individual confidence beliefs, however, little is known about the impact of collective confidence beliefs. In the management literature, there is some empirical evidence of the influence of team-based confidence in production teams (Gully et al. 2002; Lee et al. 2002). However, given the variability in task uncertainty and behavioral control in team-based service delivery, it is not clear whether group-level confidence also has the ability to predict typical key service marketing performance criteria, such as customer-perceived service quality and service productivity (Deeter-Schmelz and Ramsey 2003). Therefore, we examined collective confidence beliefs in relation to boundary-spanning service SMTs.

Second, although the marketing literature has focused on the impact of task-specific confidence beliefs (i.e., efficacy) on marketing performance (e.g., Brown et al. 1998, 2001), the implementation of self-management entails that teams also develop more general group potency beliefs. These confidence beliefs commonly reflect a broader set of activities (i.e., planning and control, monitoring, negotiating) and are aimed at facilitating the execution of core tasks (Mohammed, Mathieu, and Bartlett 2002). Therefore, we simultaneously examined the impact of (task-specific) team efficacy and (generalized) group potency on the performance of boundary-spanning service SMTs.

Finally, causality in the linkage between employee confidence beliefs and performance warrants further attention. Thus far, the focus in most studies has been on causal effects of employee confidence beliefs on marketing-related performance parameters (e.g., Brown et al. 1998; Wang and Netemeyer 2002). The reciprocal causation of these effects has been left virtually unaddressed (Jung and Sosik 2003). Because customers play an essential part in the service delivery process, their evaluative judgments may directly influence employee competency beliefs. As a result of the high interdependence between customers' and team members' beliefs in this customer contact environment, confidence-performance spirals may occur. However, given the cross-sectional nature of extant studies in marketing, empirical evidence of causality of these confidence-performance spirals has not been provided. Therefore, we conducted a longitudinal study investigating the full range of bidirectional employee confidence-service performance relationships.

In addressing these issues, we structure our article as follows. We first review the literature on employee

confidence constructs and present our hypotheses about the relationships of these constructs with customer-perceived and financial performance measures. On the basis of employee, customer, and financial performance data, we empirically examined the nature of the relationships between team efficacy and group potency and performance parameters. We conclude by discussing some limitations and future research directions, as well as the managerial implications of our findings.

THEORETICAL BACKGROUND AND HYPOTHESES

Efficacy beliefs are rooted in the theory of social cognition (Bandura 1986, 1997). Whereas *self-efficacy* refers to beliefs about an individual's capacity to perform a specific task successfully (e.g., serve a customer; Wang and Netemeyer 2002), *team efficacy* captures employees' collective or group-based beliefs that a team can perform a specific task successfully (Bandura 1997; Lee et al. 2002; Lindsley, Brass, and Thomas 1995). In this respect, the team-efficacy construct can be meaningfully distinguished from self-efficacy. For example, an employee who effectively carries out a specific task but belongs to an otherwise unsuccessful team may have a high sense of self-efficacy and a low sense of team efficacy (Lindsley et al. 1995).

Team efficacy also can be meaningfully discriminated from group potency, which refers to generalized confidence beliefs about the competence of a team across multiple, contextual (e.g., back-office) tasks (Eden 1990). Thus, potency reflects the perception that a team will be successful, regardless of the task (Gully et al. 2002) and is conceptually distinct from team efficacy in terms of task specificity. This distinction emphasizes the need to consider team efficacy and group potency as separate predictors of team performance.

Linking Team Efficacy and Group Potency to External Marketing Outcomes

Research on frontline service operations has shown that measures of effectiveness generally fall into two categories: (1) productivity criteria reflected by objective metrics and (2) customer-based parameters (Emery and Fredenhall 2002; Singh 2000). Herein, we focus on the intricate relationship among employee confidence beliefs, service revenues, and customer-perceived service quality. Evidence from team and services marketing literature clearly shows that employees' evaluations of and confidence in a team's competence are important predictors of team success (de Jong et al. 2004; Gully et al. 2002). We therefore, examined the impact of team efficacy and group potency on team performance parameters from a longitudinal perspective, as has been recommended in various relevant research domains.

Recent research on services marketing effectiveness also has shown that inconsistencies in team performance assessment may depend on the time interval between predictions and outcomes (Bernhardt, Donthu, and Kennett 2000; Schneider, White, and Paul 1998). Bolton and Drew (1991), for example, argued that customer assessments of service quality and purchasing behavior are relatively constant and likely to be affected over time only by companies' strategic and tactical initiatives in service delivery. The need to take the time frame into account also has been recognized in recent studies in which the impact of team efficacy and group potency on performance has been assessed longitudinally (Jung and Sosik 2003; Lee et al. 2002; Lester, Meglino, and Korsgaard 2002). Finally, research on the impact of self-management on performance has demonstrated that the effect can best be assessed over time (Banker, Field, Schroeder, and Sinha 1996).

Linking Team Efficacy and Group Potency to Service Revenues

The core responsibility of boundary-spanning service employees is to deliver high-quality service to customers (Schneider et al. 1998). *Team efficacy* therefore refers to team members' beliefs that their team has the ability to deliver excellent customer service. However, many service firms focus on productivity as a performance parameter and introduce quantifiable behavioral standards for employee performance, such as the number of customers served per time interval or the volume of services sold (Singh 2000). Service delivery involves a complex work environment in which employees need to achieve different goals, ranging from meeting such objective standards to providing excellent service quality. It has been argued that employees with high self-efficacy are more focused on task demands, less distracted by off-task cognitions, and better able to properly use information (Bandura 1997). Brown et al. (2001) demonstrated that salespeople with high self-efficacy beliefs more effectively integrate task-related information to clarify role expectations. In another study, Brown et al. (1998) reported that self-efficacy is a particularly strong determinant of sales goal setting and sales performance. Finally, Mittal et al. (2002) showed that when marketing decision makers have strong beliefs about their capability, they are more willing to invest effort in risky, rather than a risk-averse, issues. Studies in related fields have also considered the efficacy-performance relationship at the group level. Bandura (1997) stated that collective confidence beliefs positively influence team members' motivation and the coordination of their actions. In a meta-analytic study, Gully et al. (2002) reported a positive relationship between team efficacy and objective performance. Similarly, Prussia and Kinicki (1996) found that collective efficacy was related to collective goals and performance. We therefore

predicted a positive relationship between efficacy and service revenues over time.

In contrast, group potency represents a significant predictor of multiple kinds of outcome parameters because it refers to a team's general confidence about being successful in any task and according to any performance norms (Cohen and Denison 1990). Campion, Medsker, and Higgs (1993) and Campion, Papper, and Medsker (1996), for example, reported that potency is the only construct significantly related to all criterion measures, such as managerial judgments of team effectiveness and team productivity. Therefore, group potency beliefs likely have a positive impact on service revenues over time. We therefore posited the following hypotheses:

Hypothesis 1a: There will be a positive relationship between team efficacy at Time 1 (T1) and service revenues at Time 2 (T2).

Hypothesis 1b: There will be a positive relationship between group potency at T1 and service revenues at T2.

Linking Team Efficacy and Group Potency to Customer-Perceived Service Quality

A hallmark feature of frontline service operations involves service encounters between employees and customers. Therefore, customer-perceived service quality is generally considered the most important performance indicator (Schneider, Ashworth, Higgs, and Carr 1996; Schneider et al. 1998). Because work-related self-regulatory opportunities continually are presented to SMTs, the collective perception of their ability to exercise decisional control reflects members' anticipation that they will do a good job serving customers. As such, the team efficacy of SMTs represents the motivational construct that should lead to increased levels of effort and perseverance in their encounters with customers. Empirical support of this notion emerges for the more general measure of group potency as well. Shea and Guzzo (1987) reported a positive relationship between potency and customer service, and Sosik, Aviolo, and Kahai (1997) demonstrated that potency leads to higher report quality. Therefore, we expected that SMTs characterized by higher levels of team efficacy and group potency would be more likely to be evaluated positively by customers with regard to the quality of the services they provide and that this effect would persist over time. As such, we posited the following hypotheses:

Hypothesis 2a: There will be a positive relationship between team efficacy at T1 and customer-perceived service quality at T2.

Hypothesis 2b: There will be a positive relationship between group potency at T1 and customer-perceived service quality at T2.

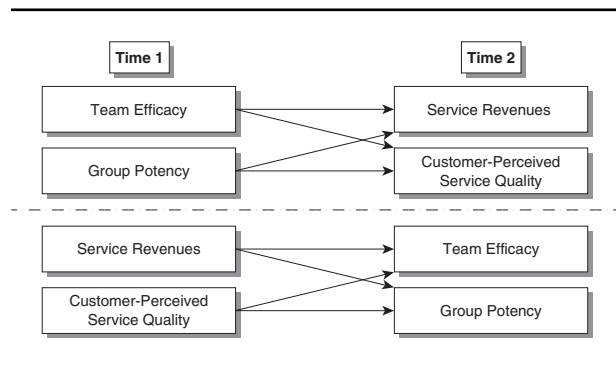
Reciprocity of Effects

Another important issue in services marketing research is the causality of performance relationships. During the past decade, an ongoing debate has raged about whether employee attitudes toward organizational practices lead to changes in customer perceptions and financial outcomes or vice versa (e.g., Schneider, Hanges, Smith, and Salvaggio 2003). Most studies have implicitly assumed a causal link from employee attitudes to customer perceptions and objective performance criteria, but this assumption fails to take into account the cyclical nature of the confidence beliefs–performance relationship. An increase in confidence beliefs may lead to higher levels of performance and cognitive processing of positive performance because, for example, positive feedback regarding a particular task might affirm a team's competence capabilities. In other words, it may not be that confident employees constitute high-performing teams but rather than when teams function well, employees become more confident.

At the organizational level, several studies have empirically demonstrated that the relationship between employee attitudes and organizational performance could be reciprocal. Schneider et al. (1998, 2003) presented evidence of reciprocal relationships, or a circular causal loop, between the service climate and customer satisfaction. Their evidence, however, was not conclusive. Ryan, Schmit, and Johnson (1996) established that customer satisfaction is a driver of employee attitudes but could not do the same for the reverse relationship. At the team level, an increasing number of authors have proposed that team efficacy-performance relationships (Bandura 1997; Lindsley et al. 1995; Zaccaro, Blair, Peterson, and Zazanis 1995) and group potency-performance relationships (Guzzo, Yost, Campbell, and Shea 1993) are reciprocal. However, conclusive and comprehensive empirical evidence of the bidirectionality of these effects remains lacking, mainly as a result of research designs that are limited by the number of effects, small time lags, or student-based research settings. For example, Riggs and Knight (1994) demonstrated that perceptions of successful group performance lead to higher levels of collective efficacy but did not establish a link between efficacy beliefs and subsequent task performance. Because the full range of reciprocal relationships has not been examined empirically at the team level, we extend current research by investigating the reciprocity of the relationships between team efficacy and group potency and service revenues and customer-perceived service quality to validate the popular notion that "success breeds success" across the organizational boundary. We posited reciprocity in all the previously hypothesized relationships:

Hypothesis 3a: There will be a positive relationship between service revenues at T1 and team efficacy at T2.

FIGURE 1
Conceptual Framework



Hypothesis 3b: There will be a positive relationship between service revenues at T1 and group potency at T2.

Hypothesis 4a: There will be a positive relationship between customer-perceived service quality at T1 and team efficacy at T2.

Hypothesis 4b: There will be a positive relationship between customer-perceived service quality at T1 and group potency at T2.

Figure 1 provides a conceptual overview of the relationships discussed thus far.

EMPIRICAL STUDY

Research Background

We surveyed employees and customers of one of the largest European banks. At this institution, approximately 58,000 individuals are employed in approximately 400 branch offices. The bank is an active player in both business and consumer markets and emphasizes customer service excellence as a key competitive advantage. As a result, the bank offers diverse services, ranging from complex, knowledge-intensive services such as investment counseling and consulting, estate planning, and trust services, to more routine, transaction-intensive services such as currency exchange, credit applications, and checking and savings accounts.

Sampling and Surveying

Of the bank's 848 service SMTs, we drew a random sample of 100. As a result of nonresponse, missing revenue and/or customer data, and respondent attrition, we ended up with a net sample of 51 SMTs with an average team size of 20 employees. Data were collected twice, at T1 and 7 months later at T2, by means of questionnaires completed by employees organized in SMTs and questionnaires mailed to their customers. For the employee survey,

all members of the SMTs were invited to participate. In total, 808 questionnaires from 51 SMTs were returned at T1 (78.0%) and 683 questionnaires from 51 SMTs at T2 (63.9%). For the customer survey, random samples of 150 customers per SMT were drawn at T1 and T2. In total, 1,505 questionnaires from 51 SMTs (19.7%) at T1 and 1,495 questionnaires from 51 SMTs (19.5%) at T2 were returned by mail. For the employee survey, 793 questionnaires at T1 and 642 questionnaires at T2 were used for further analysis. For the customer survey, 1,334 questionnaires at T1 and 1,302 questionnaires at T2 were analyzed.

The employee respondents were mostly female (69.0% at T1, 67.0% at T2) and younger than 40 years of age (55.4% at T1, 53.9% at T2). More than 45 percent were high school graduates (46.9% at T1, 45.7% at T2) and/or had completed their tertiary education (29.5% at T1, 35.4% at T2). In addition, most respondents had been members of their SMTs for more than 2 years (61.9% at T1, 67.5% at T2). The sample profile of the customer survey was composed primarily of male respondents (60.4% at T1, 65.1% at T2), more than 55 percent of whom were older than 44 years of age (56.3% at T1, 60.8% at T2). The vast majority of the respondents had long-lasting relationships with the bank (93.8% more than 5 years at T1, 94.2% more than 5 years at T2), and approximately half of them visited the bank at least monthly (53.7% at T1, 50.7% at T2).

Measurement Issues

We defined team efficacy operationally as team members' beliefs about the collective ability of their group to deliver service. On the basis of a review of the literature (Bandura 1986; Riggs, Warka, Babasa, Betancourt, and Hooker 1994), we developed a six-item scale to measure team efficacy. We based our measurement of group potency (seven items) on Guzzo et al.'s (1993) potency scale, modified to our context of SMTs. Respondents assessed the items on a 7-point, Likert-type scale ranging from *strongly disagree* (1) to *strongly agree* (7). Furthermore, we conducted 10 in-depth interviews with frontline employees to ascertain a contextually relevant operationalization of our central predictor variables.

We used confirmatory factor analysis (CFA) to assess the psychometric properties of the measures at T1 and T2 (Bollen 1989). Using LISREL 8.72 (Jöreskog and Sörbom 1993), we set up a CFA with two (first-order) factors to assess the reliability, unidimensionality, and construct validity of the measures. The factor loadings, the pattern of (standardized) residuals, and Langrangian multiplier tests (Anderson and Gerbing 1988; Bollen 1989) suggested that one group potency item and one team efficacy item should be omitted from the analysis.

As seen in Table 1, the measures of our constructs met the usual criteria for reliability and validity.

To measure customer-perceived service quality, we used Parasuraman, Zeithaml, and Berry's (1988) SERVQUAL instrument. We restricted our measure to the six quality items that typically involve employees (cf. Hartline and Ferrell 1996) and used a 5-point, Likert-type scale ranging from *very dissatisfied* (1) to *very satisfied* (5). We again used CFA to assess the psychometric properties of the measure at T1 and T2 and established a model with a single latent variable. The fit indices for this model showed a good fit to the data at T1 (see Table 1).

Furthermore, to assess the longitudinal invariance of the measures, we used multigroup CFA to analyze the equality of the sample variance and covariance matrices for T1 and T2 ($\Sigma^1 = \Sigma^2$; Steenkamp and Baumgartner 1998; Vandenberg and Lance 2000). Our results indicated that the equality hypotheses for the (co)variance matrices could not be rejected for team efficacy or group potency, $\chi_{SB}^2(66) = 61.36, p = .64$, normed fit index (NFI) = 1.00, Tucker-Lewis index (TLI) = 1.00, comparative fit index (CFI) = 1.00, incremental fit index (IFI) = 1.00, relative fit index (RFI) = 0.99, root mean square error of approximation (RMSEA) < 0.01, and customer-perceived service quality, $\chi_{SB}^2(21) = 20.71, p = 0.48$, NFI = 1.00, CFI = 1.00, IFI = 1.00, RNI = 1.00, RMSEA < 0.01.

In addition, we obtained the performance parameter of service revenues from the bank's internal database to reflect the work group's annual service revenues (in euros). The revenues reflect the profit derived from interest and provisions (gross profit) minus returns on equity (equity times the discount rate).

Finally, means, standard deviations, group-level correlations between the employee variables, and external outcome variables are presented in Table 2. Compared with group potency, team efficacy appeared to have higher correlations with customer-perceived service quality and service revenues.

Analysis Strategy

We collected data on team efficacy and group potency from individual employees and on perceived service quality from individual customer reports. Because team efficacy and group potency involve collective competency beliefs about a specific SMT, we decided to assess the predictive ability of these variables at the group level. Moreover, Campion et al. (1993) stated that group averages are more reliable and better indicators of group characteristics than individual scores. Similarly, aggregation is preferable for customer-perceived service quality because customers generally observe only the outcomes of integrative working relationships among multiple employees (Allen and Grisaffe 2001). Following the logic of out-group homogeneity theory, people tend to perceive other groups as more uniform than their own groups (Quattrone and Jones 1980); therefore, external

TABLE 1
Measures and Measurement Criteria

Measure	Standardized Loading ^a	t-Value ^b
Employee data		
Fit indices: T1: $\chi_{SB}^2(43) = 153.64, p < .001, GFI = 0.95, AGFI = 0.92, NFI = 0.98, TLI = 0.98, CFI = 0.99, IFI = 0.99, RFI = 0.98, RMSEA = 0.058, SRMR = 0.044$; T2: $\chi_{SB}^2(43) = 142.97, p < .001, GFI = 0.94, AGFI = 0.90, NFI = 0.98, TLI = 0.98, CFI = 0.98, IFI = 0.98, RFI = 0.97, RMSEA = 0.064, SRMR = 0.051$		
Team efficacy (T1: $n = 5, \alpha = .86, CR = 0.86, AVE = 0.56$; T2: $n = 5, \alpha = .88, CR = 0.88, AVE = 0.59$)		
1. Our team has the necessary skills to provide outstanding service to customers.	.79	20.41
2. In comparison to other teams, the service performance of our team is first-rate.	.65	17.81
3. Our team has the expertise to meet given service delivery standards.	.84	23.15
4. Our team can set and achieve challenging service delivery objectives.	.72	19.11
5. Our team is able to deal effectively with any service problem that may occur.	.74	21.19
Group potency (T1: $n = 6, \alpha = .86, CR = 0.86, AVE = 0.51$; T2: $n = 6, \alpha = .84, CR = 0.85, AVE = 0.50$)		
1. Our team has confidence in self-managing job requirements.	.66	17.20
2. Our team believes it can become unusually good at self-managing.	.56	15.88
3. Our team expects to be known as a high-performing self-managing team.	.47	11.11
4. Our team feels it can solve any problem it encounters.	.79	20.13
5. No task is too tough for our team.	.89	24.64
6. Our team can get a lot done when it works hard.	.82	21.82
Customer data		
Fit indices: T1: $\chi_{SB}^2(9) = 49.15, p < .001, GFI = 0.98, AGFI = 0.95, NFI = 0.98, TLI = 0.98, CFI = 0.99, IFI = 0.99, RFI = 0.97, RMSEA = 0.058, SRMR = 0.022$; T2: $\chi_{SB}^2(9) = 51.64, p < .001, GFI = 0.97, AGFI = 0.94, NFI = 0.99, TLI = 0.99, CFI = 0.99, IFI = 0.99, RFI = 0.99, RMSEA = 0.061, SRMR = 0.024$		
Customer-perceived service quality (T1: $n = 6, \alpha = .90, CR = 0.90, AVE = 0.62$; T2: $n = 6, \alpha = .91, CR = 0.90, AVE = 0.61$)		
1. The extent to which employees make clear appointments.	.60	18.80
2. The competence of the service by employees.	.75	22.86
3. The attention employees pay to you.	.85	26.29
4. The friendliness and politeness of employees.	.76	24.48
5. The extent to which employees show empathy.	.86	29.22
6. The readiness of the employees to help you.	.85	24.37

NOTE: T1 = Time 1; GFI = goodness-of-fit index; AGFI = adjusted GFI; NFI = normed fit index; TLI = Tucker-Lewis index; CFI = comparative fit index; IFI = incremental fit index; RFI = relative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; T2 = Time 2; CR = composite reliability; AVE = average variance extracted.

a. The standardized factor loadings and accompanying *t*-values are based on the confirmatory factor analyses (CFAs) for data collected at T1. The CFAs at T2 demonstrated similar results.

b. All *t*-values are significant at $p < .05$.

TABLE 2
Means, Standard Deviations, and Correlations

Variable	M	SD	1	2	3	4	5	6	7	8
1. Team efficacy _{T1}	5.53	0.35	—							
2. Group potency _{T1}	5.65	0.46	.61***	—						
3. Service revenues _{T1}	4,991,428.7	2,112,881.82	.21	.08	—					
4. Customer-perceived service quality _{T1}	4.20	0.17	.18	.19	-.19	—				
5. Team efficacy _{T2}	5.61	0.35	.43**	.10	.08	.40**	—			
6. Group potency _{T2}	5.77	0.32	.62***	.40**	-.01	.30*	.71***	—		
7. Service revenues _{T2}	5,828,407.1	2,583,656.05	.18	.05	.97***	-.20	.10	-.01	—	
8. Customer-perceived service quality _{T2}	4.19	0.17	.31*	.29*	-.06	.49***	.08	.11	-.10	—

NOTE: $n = 51$; significance is based on one-tailed tests. T1 = Time 1; T2 = Time 2.

* $p < .05$. ** $p < .01$. *** $p < .001$.

TABLE 3
Indices of Within-Group Agreement and Between-Group Differences

Variable	Reliability Coefficient					
	$r_{WG(j)}$ Coefficient		ICC (1) Coefficient ^a		ICC (2) Coefficient ^a	
	T1	T2	T1	T2	T1	T2
Team efficacy	.93	.94	.06	.07	.48	.50
Group potency	.92	.92	.12	.07	.67	.49
Perceived service quality	.94	.95	.04	.05	.53	.55

NOTE: ICC = intraclass correlation; T1 = Time 1; T2 = Time 2.

a. ICC (1) and ICC (2) were corrected for measurement error, defined as $(1 - \alpha)$ (cf. Van Yperen and Snijders 2000).

customers are inclined to perceive the service quality delivered by one or a few SMT members as a general feature of a homogeneous team. Finally, it was not possible to match employee beliefs and customer evaluations and productivity criteria empirically at the individual level. Therefore, we aggregated the individual scores of team efficacy, group potency, and perceived service quality to the group level and analyzed the links between employee SMT performance beliefs and customer-perceived service quality and service revenues at that level.

To justify data aggregation to the group level empirically, we calculated the average $r_{WG(j)}$ and intraclass correlation (ICC) coefficients for team efficacy, group potency, and perceived service quality. We report the results in Table 3. The $r_{WG(j)}$ coefficients, which indicate within-group agreement, were high for all variables (.92 to .95 at T1 and T2) and thereby reflected consistency in the ratings among individuals within groups (James, Demaree, and Wolf 1993). Whereas the $r_{WG(j)}$ coefficient exclusively considers differences among individuals within groups, the ICC (1) provides a ratio of between-group variance to total variance, thus taking both within- and between-group variance into consideration. The ICC (1) values at T1 and T2 were greater than or equal to .04, indicating that all variables possessed a sizable part of between-group variance. In addition, to assess the effect of interdependence accurately, it is necessary to consider group size. Therefore, we calculated the ICC (2) coefficient. The ICC (2) values at T1 and T2 were greater than or equal to .48, in support of reliable group means, which enabled us to detect group-level relations even if the ICC (1) coefficients were quite small (Bliese 2000).

To test our hypotheses, we used seemingly unrelated regressions (SURs) as implemented in Stata Release 8.0 (StataCorp 2003). SURs enable the estimation of multiple regression equations simultaneously while accounting for the correlated errors, assuming that the equations involve the same observations. When equations do not have the same set of predictor variables, SURs may lead to more efficient estimates than estimating the regression equations separately (Zellner 1962, 1963).

We simultaneously estimated the following set of equations:

$$\text{REVEN}_{T2} = \alpha_0 + \alpha_1 \text{EFFIC}_{T1} + \alpha_2 \text{POT}_{T1} + \varepsilon_i, \quad (1a)$$

$$\text{QUAL}_{T2} = \beta_0 + \beta_1 \text{EFFIC}_{T1} + \beta_2 \text{POT}_{T1} + \varepsilon_i, \quad (1b)$$

$$\text{EFFIC}_{T2} = \gamma_0 + \gamma_1 \text{REVEN}_{T1} + \gamma_2 \text{QUAL}_{T1} + \varepsilon_i, \quad (1c)$$

and

$$\text{POT}_{T2} = \delta_0 + \delta_1 \text{REVEN}_{T1} + \delta_2 \text{QUAL}_{T1} + \varepsilon_i, \quad (1d)$$

where the dependent variables are REVEN_{T2} , a team's service revenues at T2; QUAL_{T2} , a team's score for customer-perceived service quality at T2; EFFIC_{T2} , a team's score for team efficacy at T2; and POT_{T2} , a team's score for group potency at T2. The predictor variables are REVEN_{T1} , a team's service revenues at T1; QUAL_{T1} , a team's score for customer-perceived service quality at T1; EFFIC_{T1} , a team's score for team efficacy at T1; and POT_{T1} , a team's score for group potency at T1. Finally, ε_i is the residual term for equation i , and $i = 1, \dots, M$ reflects the number of equations.¹

Because temporal order is a crucial condition for the relationship among variables in causal terms (e.g., Taris 2000), we specify time lags and estimate the delayed influence of the variables measured at T1 on variables measured at T2 (seven months later). We test the hypotheses by inspecting the regression coefficients.

RESULTS

Our findings, shown in Table 4, indicate a positive effect of team efficacy at T1 on service revenues at T2 ($b = .293, p < .05$), whereas the effect of group potency at T1 on service revenues at T2 was nonsignificant ($b = -.081, ns$). This supported Hypothesis 1a but not Hypothesis 1b. Next, our findings revealed a positive effect of team efficacy at T1 on customer-perceived service

TABLE 4
Results of Seemingly Unrelated Regressions

Equation	Coefficient ^a	t-Value	R ² (%)	Hypothesis
1.			3.54%	
EFFIC _{T1} → REVEN _{T2}	.293	1.70*		1a
POT _{T1} → REVEN _{T2}	-.081	-0.47		1b
2.			9.60%	
EFFIC _{T1} → QUAL _{T2}	.341	2.12*		2a
POT _{T1} → QUAL _{T2}	.122	0.075		2b
3.			17.95%	
REVEN _{T1} → EFFIC _{T2}	.220	1.76*		3a
QUAL _{T1} → EFFIC _{T2}	.520	4.17***		4a
4.			7.53%	
REVEN _{T1} → POT _{T2}	.163	1.25		3b
QUAL _{T1} → POT _{T2}	.403	3.07**		4b
Correlation matrix of residuals	1	2	3	4
1. Service revenues _{T2}	—			
2. Customer-perceived service quality _{T2}	-.159	—		
3. Team efficacy _{T2}	-.050	-.226	—	
4. Group potency _{T2}	-.109	-.231	.671	—

Breusch-Pagan $\chi^2(6) = 30.366^{***}$

NOTE: $n = 51$; significance is based on one-tailed tests. T1 = Time 1; T2 = Time 2.

a. Regression coefficients were standardized.

* $p < .05$. ** $p < .01$. *** $p < .001$.

quality at T2 ($b = .341, p < .05$), whereas no significant effect of group potency at T1 on customer-perceived service quality at T2 occurred ($b = .122, ns$), supporting Hypothesis 2a but not Hypothesis 2b. In addition, the findings supported Hypothesis 3a that service revenues at T1 would have a positive effect on team efficacy at T2 ($b = .220, p < .05$) but failed to support Hypothesis 3b that service revenues at T1 would have a positive effect on group potency at T2 ($b = .163, ns$). Finally, the results demonstrated that perceived service quality at T1 had significant positive effects on team efficacy ($b = .520, p < .001$) and group potency ($b = .403, p < .01$) at T2, in support of Hypotheses 4a and 4b.

In general, the team efficacy–service performance relationships possessed higher explanatory power (i.e., the R^2 values were higher) than the group potency–service performance relationships. Furthermore, the employee confidence–perceived service quality relationships were more powerful than the employee confidence–service revenues counterparts. In addition, the standardized regression coefficients for the hypothesized effects of employee beliefs at T1 on performance at T2 (Hypotheses 1 and 2) were generally smaller in size than the comparable coefficients for the reciprocal relationships (Hypotheses 3 and 4).

DISCUSSION

We summarize our main findings in Table 5. Specifically, our results reveal the lagged, positive effects of

team efficacy at T1 on service revenues and customer-perceived service quality at T2. Similarly, in the opposite causal direction, we demonstrate lagged positive effects of service revenues and customer-perceived service quality at T1 on team efficacy at T2. Furthermore, our results provide convincing support of the lagged positive effect of customer-perceived service quality at T1 on group potency at T2. These results suggest that in a complex, team-based service delivery environment, cognitive mechanisms that offer a fine-tuned explanation of how employees react collectively to the changing nature of self-regulatory opportunities must be clearly identified. Our study extends theory on collective confidence beliefs by demonstrating how SMT efficacy and potency beliefs differentially relate to pivotal customer service performance parameters over time.

To begin with, our results demonstrate that team efficacy relates substantially better to the different marketing outcomes than group potency. The effects of task-specific team efficacy at T1 on service revenues and customer-perceived service quality at T2 suggest that proximal measures of employee confidence beliefs that explicitly refer to the context of service delivery operations are more powerful predictors of marketing performance than generalized employee confidence measures. This confirms the notion that employee attitudinal measures should be proximal to perceptions of the team's service delivery practice to effectively explain variance in targeted performance parameters (de Jong et al. 2004; Tesluk, Farr, Mathieu, and Vance 1995). This may also be the reason

TABLE 5
Summary Findings

<i>Hypothesis</i>	<i>Relationship</i>	<i>Hypothesized Effect</i>	<i>Results</i>
Employee confidence → team performance relationships			
1a	Team efficacy _{T1} → service revenues _{T2}	Positive	Supported
1b	Group potency _{T1} → service revenues _{T2}	Positive	Not supported
2a	Team efficacy _{T1} → customer-perceived service quality _{T2}	Positive	Supported
2b	Group potency _{T1} → customer-perceived service quality _{T2}	Positive	Not supported
Team performance → employee confidence relationships			
3a	Service revenues _{T1} → team efficacy _{T2}	Positive	Supported
3b	Service revenues _{T1} → group potency _{T2}	Positive	Not supported
4a	Customer-perceived service quality _{T1} → team efficacy _{T2}	Positive	Supported
4b	Customer-perceived service quality _{T1} → group potency _{T2}	Positive	Supported

NOTE: T1 = Time 1; T2 = Time 2.

why group potency at T1 has no significant effect on either customer-perceived service quality or service revenues at T2. Although in a service delivery context, task-specific confidence beliefs involve the particular ability to provide service quality, group potency reflects team members' confidence in aspects of teamwork, such as planning and control, monitoring, and negotiating, that may only indirectly be noticed by a team's customers. In fact, such aspects may even interfere with providing service to customers, because they may create the impression that a team is not responsive to customer service needs.

In addition, the strong positive effects of efficacy on performance measures together with the presence of considerable agreement among team members on service-task related issues (see the high $R_{WG(j)}$ coefficients and significant ICCs) emphasize the relevance of the sharedness of work-related perceptions and interdependent work patterns among team members to predict service SMT performance. This is in line with Gibson (1999), who reported that the effect of group efficacy on performance is stronger when collectivism is high and team members work interdependently.

Finally, we set out to provide evidence of reciprocity in the relationship between employee confidence beliefs and marketing performance parameters for service SMTs. We find that the effects of confidence beliefs on service quality are even weaker than these reverse effects. Both team efficacy and group potency are more strongly reciprocally related to service quality. Particularly, customer perceptions have a considerable influence on employee beliefs about their collective competence. This could be because in service delivery operations, performance beliefs tend to focus on the fulfillment of specific customer needs, which thereby fosters a climate of service excellence that relates more directly to customer perceptions (Gully et al. 2002; Peterson, Mitchell, Thompson, and Burr 2000). Furthermore, our findings reveal that past service revenues have an effect on team efficacy but not on group potency. Apparently, team employees perceive

successful past service productivity rates as the result of their task-specific competence. Therefore, past financial performance primarily encourages team members' beliefs in their ability to deliver service excellence. One explanation for the fact that past service revenues have no influence on group potency may be that perceptions of the ability to function well as a team cannot be readily translated in bottom-line terms and vice versa. Although customer reactions are more explicit and directly attributable to employee behavior and skills, past financial performance may be contingent on other factors, such as advertising campaigns, investment penetrations in the local market, or even general economic climate.

In conclusion, past performance outcomes appear to influence service employees' confidence beliefs significantly, in line with findings from recent studies at the organizational level (Ryan et al. 1996; Schneider et al. 2003). This nuances the prevalent notion in the literature that employee attitudes positively affect customer perceptions and objective performance, not vice versa (Bernhardt et al. 2000; Deeter-Schmelz and Ramsey 2003; Homburg and Stock 2004; Schneider et al. 1998). Instead, our findings suggest a feedback loop from performance outcomes to team member beliefs about an SMT's competence (cf. Heskett, Sasser, and Schlesinger 1997) and empirically substantiate the claim advanced by Lindsley et al. (1995) that the efficacy-performance relationship is cyclical in nature.

Research Implications

Our study contributes to the literature on employee confidence beliefs and return on services, providing a comprehensive, simultaneous examination of the triad of employee beliefs, customer assessments, and profitability criteria. Thus far, such an integral approach to model this triad has been lacking, because most studies have focused on separate aspects of the service-profit chain (cf. Zeithaml 2000) without the inclusion of employee measures (e.g., Kamakura, Mittal, de Rosa, and Mazzon 2002). Because

the results of this research are based on data of a single financial services organization, we do not state that we offer a universally applicable model of the aforementioned triad. Instead, its contribution lies in providing a strategic tool to marketing managers who wish to implement the principles of the service-profit chain. Therefore, additional work should examine the generalizability of our findings to other frontline service settings (e.g., technical support), multiple service firms, other types of service interactions, and multiple cultural backgrounds.

Second, our study advances our understanding of the causality of employee confidence beliefs, customer quality evaluations, and profitability metrics. The longitudinal nature of our model enables us to identify the causal mechanisms between the different types of measures, which is necessary for managers to acquire a better understanding of the potential return on services. Additional longitudinal research is needed to provide a more rigorous interpretation of the theoretical mechanisms behind the cyclic nature of efficacy-performance relationships. For example, the generally stronger effects of reciprocity emphasize the relevance of including a feedback loop when investigating the chain of relationships with marketing outcomes (e.g., Heskett et al. 1997). Apparently, ratings of employees are affected by performance outcomes. Moreover, efficacy and potency perceptions, as well as their relationship with performance parameters, may be dynamic in nature. Competency beliefs thus may become more homogeneous over time as members interact more and become more experienced at self-regulation (Gully et al. 2002). Further conceptual development and empirical work are needed to gain in-depth insights into the performance chain of service employees, customer evaluations, and productivity in light of these reciprocal and dynamic phenomena. In addition to the longitudinal approach taken in this study, further research could use experimental designs in which team efficacy and potency might be manipulated (e.g., by controlling for performance feedback ratings) to infer causality in relationships with performance parameters.

Third, our findings are based on longitudinal data sets of both employees and customers that were aggregated and analyzed at the team level. Despite the relatively small number of teams, our test yields robust effects, providing powerful evidence of our theoretical framework. This substantial evidence of theory emphasizes the relevance to replicate and make further refinements. Given the relatively small set of SMTs in the current study, future research should examine a larger number of teams to conduct inferential analyses to explore for possible moderating effects. Given the diverging effects of team efficacy and group potency on customer-perceived service quality and service revenues, tests for the moderation of personal and team characteristics may help further explicate the relationship between confidence beliefs and performance measures. Further research might explore the potential moderating

roles of constructs that reflect a team's or individual employee's ability to make appropriate performance adjustments on the basis of their cognitive reflexivity (Schippers, den Hartog, Koopman, and Wienk 2003) or behavioral flexibility (Sternberg and Vroom 2002).

Managerial Implications

Our findings also suggest several managerial implications. They help managers better understand the causal mechanisms behind the chain of employee beliefs, customer evaluations, and profitability rates. Moreover, our findings lend support to reciprocal relationships. Specifically, the occurrence of reciprocal effect implies that informing team members about the results of service quality research and/or offering them feedback on their team's past revenues may instigate a virtuous competency-performance cycle, leading to improved future performance (cf. Lindsley et al. 1995).

Second, our study shows that rather than generalized competence, task-specific employee beliefs are important predictors of performance in the complex service delivery environment. This implies that managers should prioritize task-specific competence as the critical determinant to deliver service delivery excellence and design training programs accordingly.

In conclusion, our article offers some valid and reliable group-level aggregated measures of team of performance. Therefore, our study provides measurement instruments that are directly relevant to business performance. Constructs based on averaged employee perceptions across individuals, which result in team characteristic measurements, reduce the impact of trait-specific individual differences. Moreover, because team efficacy (and group potency) represent composites of multiple individual-level scores, they are more reliable and less susceptible to measurement error. One practical consequence of using such composite measurement instruments is that the length of employee surveys could be reliably reduced (Harter, Schmidt, and Hayes 2002).

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NOTE

1. We calculated Breusch and Pagan's (1980) chi-square statistic to test whether the correlations among the residual terms were significant. This statistic can be expressed as

$$\lambda = T \sum_{m=1}^M \sum_{m=1}^{m-1} r_{mm}^2, \quad (2)$$

where r_{mm} is the estimated correlation between the residuals of the M equations, and T is the number of observations. It is distributed as a chi-square statistic with $M(M-1)/2$ degrees of freedom. Furthermore, we accounted for multicollinearity by inspecting the variance inflation factors (VIFs) of the predictor variables. For all predictor variables, VIF values were below 1.6. These findings provide evidence for the absence of severe multicollinearity (Neter, Kutner, Nachtsheim, and Wasserman 1996). In addition, we used one-tailed tests of significance for the hypotheses because they are directional (Robinson 1988).

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