

Developing Collective Customer Knowledge and Service Climate: The Interaction Between Service-Oriented High-Performance Work Systems and Service Leadership

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This study theorized and examined the influence of the interaction between Service-Oriented high-performance work systems (HPWSs) and service leadership on collective customer knowledge and service climate. Using a sample of 569 employees and 142 managers in footwear retail stores, we found that Service-Oriented HPWSs and service leadership reduced the influences of one another on collective customer knowledge and service climate, such that the positive influence of service leadership on collective customer knowledge and service climate was stronger when Service-Oriented HPWSs were lower than when they were higher or the positive influence of Service-Oriented HPWSs on collective customer knowledge and service climate was stronger when service leadership was lower than when it was higher. We further proposed and found that collective customer knowledge and service climate were positively related to objective financial outcomes through service performance. Implications for the literature and managerial practices are discussed.

Keywords: high-performance work systems, leadership, human capital, organizational climate, service contexts

Management researchers have been interested in how to obtain organizational success by affecting employees. Previous research has identified two primary mechanisms through which organizations may achieve this objective: human capital and organizational climate. Drawing on the resource-based view (Barney, 1991) and human capital theory (Becker, 1964), scholars have investigated *human capital*—a collective or unit-level resource (Nyberg, Moliterno, Hale, & Lepak, 2014) that is composed of employees' knowledge, skills, abilities, and other characteristics (KSAOs) (Ployhart & Moliterno, 2011; Ployhart, Van Iddekinge, & MacKenzie, 2011)—as a critical determinant of organizational success. This is because human capital not only sets a foundation for organizational performance but also serves as a source of sustained competitive advantage (Wright, McMahan, & McWilliams, 1994). From another perspective, researchers have argued that it is difficult to monitor and control employees' behaviors because of the

complex nature of contemporary work and have, therefore, suggested creating a supportive climate to guide employees' behaviors during task performance (Schneider, Ehrhart, & Macey, 2013). In particular, climate researchers have suggested targeting a climate toward specific outcomes of interest (e.g., innovation, safety, service) and demonstrated that organizational climate is a critical mediator linking organizational factors to desired outcomes (see, e.g., the meta-analytic reviews of Christian, Bradley, Wallace, & Burke, 2009; Hong, Liao, Hu, & Jiang, 2013).

Despite the accumulated knowledge of human capital and organizational climate, two important concerns remain in the literature. First, although human capital and organizational climate have been examined as proximal predictors of organizational effectiveness separately, little effort has been devoted to integrating the two perspectives to examine their simultaneous impacts on performance outcomes. These two theoretical perspectives reflect different elements of organizational success, such that the human capital perspective emphasizes the KSAOs necessary for performing tasks (Ployhart & Moliterno, 2011), whereas the organizational climate perspective focuses on the role of perceived work environment in enhancing employees' willingness and motivation to engage in expected work behaviors (Carr, Schmidt, Ford, & DeShon, 2003; Christian et al., 2009; Hong et al., 2013). Therefore, theoretically, the two perspectives should be combined to provide a more complete understanding of how organizations can perform well by managing employees and whether both human capital and organizational climate play vital roles in mediating the impacts of distal organizational antecedents on performance outcomes. Practically, empirical evidence can help clarify whether organizations need to invest in both human capital and organizational climate to achieve performance objectives.

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Second, efforts are needed to explore how to enhance these two variables efficiently. From a strategic human resource management (HRM) perspective, previous research has primarily emphasized the influence of systems or bundles of HRM practices on human capital (e.g., Aryee, Walumbwa, Seidu, & Otaye, *in press*; Takeuchi, Lepak, Wang, & Takeuchi, 2007) and organizational climate (e.g., Chuang & Liao, 2010; Zacharatos, Barling, & Iverson, 2005). Despite the importance of HRM practices, both human capital scholars (Nyberg et al., 2014) and climate researchers (Bowen & Schneider, 2014) have argued that focusing on HRM practices is necessary, but may not be sufficient, to fully understand how to enhance human capital and organizational climate. In particular, Nyberg and colleagues pointed out that the vast majority of studies they examined on the antecedents of human capital (32 out of 37 articles) focused on HRM practices, with almost no studies examining other organizational factors. Bowen and Schneider (2014) also noted that “a focus only on HRM practices is limiting because so many other practices and issues influence employee experiences and their likely perceptions” (p. 12). As noted by these scholars, it becomes necessary to identify other antecedents and explore how they interact with HRM practices to affect human capital and organizational climate.

One factor that may influence human capital and organizational climate but has not been fully studied with HRM practices is leadership. It is reasonable to take the role of leadership into account because of its function in developing and motivating personnel resources (Burke et al., 2006; Morgeson, DeRue, & Karam, 2010). However, as reviewed by Nyberg et al. (2014), the influence of leadership on human capital has been surprisingly neglected in previous research. An equally important void is that, although leadership has been recognized as a critical determinant in shaping organizational climate (Hong et al., 2013; Schneider et al., 2013), few studies have examined its influence along with HRM practices. The inadequate attention to these issues leaves a series of important questions unanswered, such as whether both HRM practices and leadership are needed and how they interact with one another to influence human capital and organizational climate. Addressing these issues is theoretically critical in several respects: It can nicely connect the literatures of human capital and leadership by investigating leadership as another antecedent of human capital; it can move beyond the additive approach to obtain a better understanding of how to promote human capital and organizational climate; and it can also provide a nuanced approach to the theoretical refinement of strategic HRM and leadership. Further, it is practically important for organizations to understand what they should do to foster human capital and organizational climate in an efficient way.

To answer these questions, in the present study, we focused on the influence of the interaction between HRM practices and leadership on human capital and organizational climate in the service context. More specifically, we examined the influence of the interaction between Service-Oriented high-performance work systems (HPWSs) and service leadership on collective customer knowledge (i.e., a type of context-specific human capital) and service climate (i.e., a specific, focused organizational climate), both of which are highly relevant to the service context. In this study, we also explored the simultaneous roles of collective customer knowledge and service climate in translating the influences of HRM practices and leadership on service and financial perfor-

mance of service units. Because of the importance of the service industry to the modern economy, management scholars have devoted increasing attention to human capital and organizational climate in service organizations (e.g., Ployhart et al., 2011; Ployhart, Weekley, & Ramsey, 2009; Schneider, Ehrhart, Mayer, Saltz, & Niles-Jolly, 2005; Schneider, White, & Paul, 1998). Therefore, service units provided an ideal context to not only test our theoretical propositions but also offer implications for management practices.

In doing so, we have extended the research on human capital and organizational climate in several respects. First, this study synthesizes the human capital perspective and the organizational climate perspective to shed light on the intermediate linkages between organizational antecedents and performance outcomes. Second, this study advances the human capital literature by examining service leadership as a new antecedent and exploring the influence of its interaction with HRM practices on human capital. This complements previous research that focused heavily on the influence of HRM practices on human capital (Nyberg et al., 2014; Wright, Coff, & Moliterno, 2014). Third, this study extends the organizational climate literature in general and the research of service climate in particular by examining how leadership works with HRM practices to affect service climate. In addition to its primary contributions to the literatures of human capital and organizational climate, this study also bridges the research domains of strategic HRM and leadership and offers theoretical and practical implications for achieving business success in the service context.

In the following, we first propose the main relationships of Service-Oriented HPWSs and service leadership with collective customer knowledge and service climate, respectively, then theorize the influence of interaction between the two antecedents on the two intermediate variables. Finally, we discuss the linkages between the two mediators and service and financial performance. The theoretical model summarizing the proposed relationships of this study is presented in Figure 1.

Theoretical Background and Hypotheses

Influences of Service-Oriented HPWSs and Service Leadership on Collective Customer Knowledge

Strategic HRM researchers consider an HPWS to be a bundle of HRM practices that are intended to enhance employees' abilities, motivation, and opportunities to contribute to organizational effectiveness (e.g., Datta, Guthrie, & Wright, 2005; Huselid, 1995; Lepak, Liao, Chung, & Harden, 2006). Although the number of HRM practices thought to compose an HPWS varies from one study to another (Posthuma, Campion, Masimova, & Campion, 2013), an HPWS typically includes selective staffing, extensive training, developmental performance appraisal, performance-based compensation, flexible job design, and involvement and participation (e.g., Datta et al., 2005; Sun, Aryee, & Law, 2007; Takeuchi et al., 2007; Zacharatos et al., 2005). As summarized in meta-analytic reviews (Combs, Liu, Hall, & Ketchen, 2006; Jiang, Lepak, Hu, & Baer, 2012), these practices have been consistently found to be positively linked to employee outcomes as well as the operational and financial outcomes of firms.

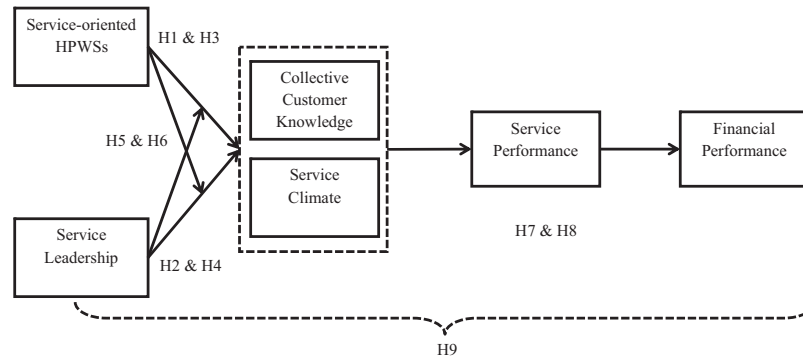


Figure 1. Theoretical Model. Note. HPWSs = high-performance work systems.

To establish a close relationship between HRM practices and strategic objectives, scholars have conceptualized HPWSs specifically toward customer service in the service context (e.g., Aryee, Walumbwa, Seidu, & Otake, 2012; Chuang & Liao, 2010; Liao, Toya, Lepak, & Hong, 2009). In contrast to HRM systems with general managerial objectives (e.g., high performance, high commitment, high involvement), Service-Oriented HPWSs place emphasis on enhancing customer-contact employees' human capital, motivation, and empowerment in delivering high-quality service (Liao et al., 2009). For example, instead of providing training opportunities in general, organizations may support employees to join training programs that focus on customer knowledge and service skills. Similarly, in organizations adopting Service-Oriented HPWSs, employees' compensation may be related to service quality, which is then regarded as the most important criterion in performance appraisal. Also, employees may be involved in service-related decision making and allowed to resolve customer problems autonomously.

Service-Oriented HPWSs are expected to enhance *collective customer knowledge*, which is defined as overall knowledge possessed by employees of a service unit regarding characteristics of different customer types and strategies for dealing with varying customer needs (Bettencourt, Gwinner, & Meuter, 2001). This definition highlights two important features of human capital. First, collective customer knowledge is a unit-level human capital resource, which differentiates it from individual employees' customer knowledge. This distinction is important because individual-level and unit-level human capital are intended to affect outcomes at different levels of analysis (Wright et al., 2014). Given our focus on enhancing the service performance and financial performance of service units, it is more appropriate to study collective customer knowledge as a unit-level construct (Crook, Todd, Combs, Woehr, & Ketchen, 2011; Nyberg et al., 2014). Moreover, as suggested by Ployhart and Moliterno (2011), collective customer knowledge emerges from individual customer knowledge through a complex process that involves coordination and communication among work-unit members and social interaction with a work-unit's customers. Therefore, it is not a simple aggregation of individual employees' customer knowledge. In this case, it is appropriate to examine overall customer knowledge of employees within a unit to represent a unit-level human capital resource (Wright & McMahan, 2011).

Second, our definition of collective customer knowledge reflects the content of unit-level human capital resources. As suggested by

strategic human capital scholars (e.g., Ployhart & Moliterno, 2011; Ployhart, Nyberg, Reilly, & Maltarich, 2014; Wright & McMahan, 2011), even though a human capital resource is based on individuals' KSAOs, not all KSAOs can become human capital resources. These scholars have further suggested that researchers consider the accessibility and relevance of a human capital resource for a specific unit's purposes. Consistent with this argument, we consider collective customer knowledge a context-specific human capital resource that is unique to service units. Compared with generic human capital (e.g., cognitive ability, personality, values, education), collective customer knowledge is more relevant to the goals of service units and thus more likely to be a strategic resource that has great potential to contribute to service units' performance.

Service-Oriented HPWSs may enhance collective customer knowledge in different ways. Through selection and training practices, service units can directly improve employees' collective customer knowledge (Kim & Ployhart, 2014). For example, organizations can hire employees with service experience or service potential and then facilitate learning in the area of how to identify and deal with customer needs by offering them training and development programs. Employees can also gain customer knowledge through their interactions with customers and information-sharing with each other. For example, by delegating decision rights to employees, organizations can offer opportunities for employees to build close relationships with customers and, thus, make it easier to access to the information residing in customers. Similarly, organizations can facilitate the sharing of customer knowledge by involving employees in decision-making and problem-solving activities. Employees can also practice their knowledge during customer service and receive performance feedback for further improvement. Moreover, covered by a compensation system tied to service quality, employees are motivated to enhance customer knowledge through the various approaches just mentioned. Taken together, these practices of Service-Oriented HPWSs may contribute to employees' collective customer knowledge. Although direct evidence is not available for the relationship between Service-Oriented HPWSs and collective customer knowledge, studies have demonstrated the positive influence of HRM practices on human capital in general (e.g., Aryee et al., in press; Jiang, Lepak, Hu, & Baer, 2012; Takeuchi et al., 2007). Therefore, we expected to observe a positive relationship between Service-Oriented HPWSs and collective customer knowledge.

Hypothesis 1: Service-Oriented HPWSs will be positively related to collective customer knowledge.

In addition to the influence of Service-Oriented HPWSs, we also expected that there would be an influence of leadership on collective customer knowledge. We focused on the leadership of immediate supervisors who directly led nonmanagerial employees to deliver services to customers rather than on that of higher level managers. This approach is consistent with previous research examining the influence of leadership on service outcomes (e.g., Liao & Chuang, 2007; Salvaggio et al., 2007; Schneider et al., 2005). Instead of studying general leadership occurring across situations, we focused on *service leadership*, which is defined as “a unit’s leader’s behavioral focus on service quality as an imperative for the unit” (Schneider et al., 2005, p. 1019). According to this definition, a service leader is expected to engage in behaviors such as “recognizing and appreciating high-quality service, removing obstacles to service delivery, setting clear standards for service quality, and so forth” (Schneider et al., 2005, p. 1019). It has been suggested that service leadership has a stronger impact on service outcomes than does general leadership (Hong et al., 2013).

Service leaders may help enhance collective customer knowledge in different respects. First, as suggested by Morgeson et al. (2010), formal leaders of service units may play an important role in determining the composition of their units. Leaders who have a strong commitment to provide high levels of service quality may engage in identifying new members with required knowledge to deliver customer service. Service leaders may also ensure high levels of collective customer knowledge in their units by replacing employees who are incapable of serving customers effectively. Second, leaders who are committed to superior service usually expect higher levels of service performance from their followers. To meet performance standards set by supervisors, employees need to broaden their knowledge about different types of customers so that they can use appropriate strategies to serve a variety of customers. Third, service leaders can enhance collective customer knowledge by acting as mentors or coaches to cultivate employees who can handle different customers and situations. By spending time interacting with customers, service leaders provide opportunities for employees to directly learn from them about how to identify customer needs and deal with customer problems. Fourth, leaders who recognize high-quality service should remain attentive to customer service and pay special attention to followers’ needs. Service leaders who remove obstacles to service delivery can help followers apply their knowledge and improve their ability to serve customers. Fifth, service leaders may also identify deficiencies in employees’ service performance and provide feedback to enable their units to serve customers better. Because of these considerations, we expected service leaders to increase the collective customer knowledge of service units.

Although limited attention has been devoted to the influence of service leadership on collective customer knowledge in particular, the just-mentioned leadership functions have been forwarded in the leadership literature (Burke et al., 2006; Morgeson et al., 2010). In terms of empirical evidence, researchers have found that leaders’ empowering behaviors are likely to promote team members’ ability to learn and coordinate their knowledge (Lorinkova, Pearsall, & Sims, 2013) and can facilitate knowledge sharing among members of management teams in a service setting (Sriv-

astava, Bartol, & Locke, 2006). On the basis of the theoretical arguments and the empirical evidence, we hypothesized that there would be a positive relationship between service leadership and collective customer knowledge.

Hypothesis 2: Service leadership will be positively related to collective customer knowledge.

Influences of Service-Oriented HPWSs and Service Leadership on Service Climate

We also expected Service-Oriented HPWSs and service leadership to enhance service climate, a type of organizational climate with a specific strategic focus (Schneider et al., 2013). *Service climate* refers to employees’ shared perceptions of the importance in meeting customers’ needs effectively (Borucki & Burke, 1999; Johnson, 1996; Schneider et al., 1998). Employees develop this shared perception by collecting and interpreting information from their work environment (Schneider et al., 2013). When employees perceive that high-quality service is emphasized, service climate is likely to emerge (Schneider et al., 1998).

HRM practices have been considered an important means for communicating organizational values to employees (Bowen & Ostroff, 2004). When all practices of HPWSs are targeted specifically to customer service (e.g., providing training for service-related skills, evaluating and rewarding service performance), the whole system can send an unambiguous and consistent message to employees that service quality is highly valued in the organization. This strong signal makes employees feel that they are expected to provide, supported in providing, and rewarded for providing high-quality service to customers, which results in a shared perception of service climate. Empirical studies have shown a positive relationship between HRM practices and service climate (e.g., Chuang & Liao, 2010; Salanova, Agut, & Peiró, 2005). In a meta-analytic study, Hong et al. (2013) found that this relationship was stronger for Service-Oriented HRM practices than general HRM practices. Consistent with these theoretical arguments and empirical findings, we proposed a positive relationship between Service-Oriented HPWSs and service climate.

Hypothesis 3: Service-Oriented HPWSs will be positively related to service climate.

Service leadership can also help to create a climate that emphasizes service quality. As suggested by Kozlowski and Doherty (1989), employees’ immediate supervisors serve as the most salient representatives of organizations and, thus, play a critical role in shaping employees’ climate perceptions. The influence process can be explained from several theoretical perspectives, including social information processing theory (Salancik & Pfeffer, 1978) and social learning theory (Bandura, 1977). According to social information processing theory, employees collect information available in their immediate work environment to help interpret events and understand their work environment. As employees working in the same unit are exposed to similar cues conveyed by their leader, they are likely to have a shared understanding of the behaviors that are acceptable or expected in the unit. Social learning theory also points to the impact of leadership on the emergence of organizational climate. This theory suggests that employees may consider their leader a role model and learn what behaviors

are appropriate by observing the leader's behaviors. As a result of the learning process, employees may develop a common understanding of organizational climate (Mayer, Kuenzi, Greenbaum, Bardes, & Salvador, 2009; Wallace, Johnson, Mathe, & Paul, 2011).

Consistent with both theoretical perspectives, service leadership is expected to facilitate the emergence of service climate. With a strong commitment to improving service quality, service leaders can define high-quality service as a clear objective of their work units and communicate this expectation to employees, which may set the basis for service climate perceptions. By recognizing employees' superior service quality and providing responsive support for service activities, service leaders may further ensure that employees understand that they are expected to deliver and supported in the delivery of high-quality service. Consequently, employees may understand that service quality is an important theme in their workplace and, thus, develop a shared perception of service climate. Schneider et al. (2005) have provided direct evidence for this relationship. Hong et al. (2013) also confirmed this relationship in their meta-analysis.

Hypothesis 4: Service leadership will be positively related to service climate.

Interaction Between Service-Oriented HPWSs and Service Leadership

On the basis of the foregoing discussion, an intriguing question one might ask is whether Service-Oriented HPWSs and service leadership interact to influence collective customer knowledge and service climate and, if so, whether the two antecedents attenuate or accentuate the influences of one another. By answering these questions, researchers can move beyond the additive approach to obtain a better understanding of the antecedents of collective customer knowledge and service climate. The answers may also indicate whether service units need to invest in both Service-Oriented HPWSs and service leadership to promote collective customer knowledge and service climate.

We proposed that an interaction between HRM practices and leadership would emerge in the service context. In particular, we believed that Service-Oriented HPWSs and service leadership might substitute for the influence of one another to facilitate collective customer knowledge and service climate, such that Service-Oriented HPWSs and service leadership led to the same levels of the intermediate variables and that using both might not result in a greater impact compared with their individual effects (Delery, 1998). This prediction was based on the substitutes-for-leadership theory (Kerr, 1977; Kerr & Jermier, 1978), which suggests that organizational factors such as HRM practices can reduce a leader's ability to influence employee outcomes and replace the influence of a leader's behavior with employees' own (Kerr & Jermier, 1978; P. M. Podsakoff, MacKenzie, & Bommer, 1996). This model has been used to explain the substitutive effect of leadership for the influence of HRM practices (Chuang, Jackson, & Jiang, in press) and, thus, provides a useful framework for understanding the influence of the interaction between Service-Oriented HPWSs and service leadership on the two mediators.

Consistent with this substitutive perspective, we expected Service-Oriented HPWSs and service leadership to enhance col-

lective customer knowledge in a substitutive manner. This was because Service-Oriented HPWSs and service leadership overlap in their functions to enhance collective customer knowledge. In one respect, service units may implement Service-Oriented HPWSs to arm employees with required customer knowledge. For example, service units can select employees who have the potential to serve customers and train them to pay particular attention to customer needs and solve customer problems. Performance feedback and participation in decision making may further provide employees with chances to acquire and share the knowledge necessary to meet customer needs. In another respect, service units may also promote collective customer knowledge by using leadership behavior specific to customer service. For example, service leaders can instruct employees on how to deliver superior service, help them to learn from past events or experiences, and provide feedback to correct their mistakes and reinforce appropriate ways of serving customers. Given the similar influence of Service-Oriented HPWSs and service leadership on collective customer knowledge, the influence of either one may be weakened when the other is already in use. Alternatively, when either is absent, service units may rely more on the other to enhance collective customer knowledge. Therefore, we proposed the following:

Hypothesis 5: There will be an influence of the interaction between Service-Oriented HPWSs and service leadership on collective customer knowledge, such that Service-Oriented HPWSs and service leadership will reduce the positive influence of one another on collective customer knowledge.

Similarly, Service-Oriented HPWSs and service leadership were expected to weaken the influence of one another on service climate. As discussed, both HRM practices and leadership can help to create and maintain shared climate perceptions among employees. When HRM practices are designed around customer service, practices like service training and service-based compensation may send strong signals to employees that service quality is valued, expected, and rewarded in their service units. Because employees are exposed to the same HRM practices within units, they are likely to form a shared perception of service climate. Meanwhile, service leaders may foster a service climate by setting goals for customer service, recognizing and appreciating high-quality service, and providing resources to support high-quality service. Led by the same leader within a unit, employees are also likely to develop a shared understanding of service environment. These arguments suggest that Service-Oriented HPWSs and service leadership are two alternative sources by which service units can establish a service climate. When both of them emphasize the importance of service quality, the influence of either one on service climate may be weakened by the other. In contrast, when either one is missing, it may leave more room for the other to affect service climate. Therefore, we predict the following:

Hypothesis 6: There will be an influence of the interaction between Service-Oriented HPWSs and service leadership on service climate, such that Service-Oriented HPWSs and service leadership will reduce the positive influence of one another on service climate.

Linkage to Service Performance and Financial Performance

We now shift the focus from the antecedents to the consequences of collective customer knowledge and service climate. Both human capital and service climate have been found to be positively related to unit-level outcomes in previous research (e.g., Ployhart et al., 2009, 2011; Salanova et al., 2005; Schneider et al., 2005). However, few studies have touched on their simultaneous influences. We think both perspectives are essential for high-quality service and that exploration of the concurrent influences of both factors may provide a more complete understanding of the mechanisms of service performance. From the resource-based view (Barney, 1991) and human capital theory (Becker, 1964), human capital researchers have argued that human capital embedded in employees represents KSAOs necessary for job performance (Aryee et al., in press; Ployhart et al., 2009), which can be a source of sustained competitive advantage (Nyberg et al., 2014; Takeuchi et al., 2007). From another perspective, service climate researchers believe that service climate is a strong contextual force that directs employee motivation and efforts to provide high-quality service (Ehrhart, Witt, Schneider, & Perry, 2011; McKay, Avery, Liao, & Morris, 2011). Consideration of the two perspectives ensures that employees possess knowledge and motivation to provide high-quality service, which is consistent with a recent meta-analysis of strategic HRM that found that both human capital and employee motivation contribute to the operational performance of organizations (Jiang, Lepak, Hu, & Baer, 2012).

We further expected service performance to fully mediate the influence of collective customer knowledge and service climate on financial performance. These full-mediation predictions were based on theoretical considerations and previous empirical evidence. Theoretically, the mediating role of service performance has been suggested from several perspectives, such as service linkage research (Pugh, Dietz, Wiley, & Brooks, 2002; Schneider et al., 2005; Wiley, 1996) and the service profit chain model (Heskett, Sasser, & Schlesinger, 1997). A common underlying rationale of these perspectives is that collective customer knowledge or service climate does not directly contribute to financial performance; it is high-quality service that translates them into enhanced customer experiences and then generates profits for service units (Hong et al., 2013). In other words, collective customer knowledge and service climate cannot relate to financial performance unless they are converted into high-quality service that can be experienced and purchased by customers. In terms of empirical evidence, several studies have shown that service performance is positively related to financial performance or marketing performance (e.g., Borucki & Burke, 1999; Chuang & Liao, 2010; Ployhart et al., 2011; Schneider et al., 2005; Schulte, Ostroff, Shmulyian, & Kinicki, 2009). Furthermore, Chuang and Liao (2010) and Schneider et al. (2005) both provided direct evidence that service performance fully mediated the relationship between service climate and financial performance. Ployhart et al. (2011) also found that changes in service performance fully mediated the impact of changes in human capital on changes in financial performance over time. Given these arguments and findings, we expected service performance to fully mediate the positive relationships between collective customer knowledge and service climate and financial performance of service units.

Hypothesis 7: Service performance will fully mediate the positive relationship between collective customer knowledge and financial performance.

Hypothesis 8: Service performance will fully mediate the positive relationship between service climate and financial performance.

Overall Mediated Moderation Model

Considering the hypotheses about the antecedents and the consequences of collective customer knowledge and service climate together, we expected the two intermediate variables to mediate the influence of the two antecedents on service performance and financial performance. We further integrated the interaction hypotheses into the mediation model and posited that Service-Oriented HPWSs and service leadership would interact to affect financial performance, first through collective customer knowledge and service climate and then through service performance, such that the conditional indirect relationship between one factor (either Service-Oriented HPWSs or service leadership) and financial performance through each mechanism (i.e., through either collective customer knowledge or service climate to service performance and then to financial performance) would be stronger when the other factor was lower than when it was higher. Taken together, we proposed an overall mediated moderation model of the interactive effect of Service-Oriented HPWSs and service leadership on financial performance through collective customer knowledge, service climate, and service performance.

Hypothesis 9: The influence of the interaction between Service-Oriented HPWSs and service leadership on financial performance will be mediated, first by collective customer knowledge and service climate and then by service performance.

Method

Participants and Procedures

To investigate our hypotheses, we collected data from retail stores of a shoe retailer that is one of the leading enterprises in the footwear industry in China and is famous for making high-fashion, stylish shoes for women. It has more than 10 well-known brands and operates over 5,000 retail stores. After receiving consent from the headquarters, we were allowed to collect data from the stores selling the most important brand of the company in a big city in eastern China. We collected data from various sources (i.e., managers, employees, and archival data) at three time points to reduce common method biases (P. M. Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) and improve methodological rigor in testing the causality of our research model (Wright, Gardner, Moynihan, & Allen, 2005). In particular, we measured Service-Oriented HPWSs by surveying store managers at Time 1, collected information on service leadership and service climate from employees and information on collective customer knowledge and service performance from store managers at Time 2, and obtained financial data at Time 3. We used a 3-month time lag between any two adjacent time points for both theoretical and practical considerations. Theoretically, researchers have suggested that a time lag should be long

enough to reduce common method biases but not mask any relationship that really exists (P. M. Podsakoff et al., 2003). In light of the literature, we deemed 3 months reasonable to capture the impact of HRM practices on employee outcomes and the influence of service performance on short-term financial outcomes (e.g., Chang, Jia, Takeuchi, & Cai, 2014; Peterson & Luthans, 2006). Moreover, the use of 3-month time lags matched the participating stores' operations and the company's timeline in terms of summarizing stores' financial performance.

The first round data collection was conducted in December 2012. We randomly selected 200 out of about 400 stores selling the specific brand of shoe that was our focus and asked store managers to report the implementation of Service-Oriented HPWSs for managing customer-contact employees in their respective stores. Human resources scholars have suggested that firms may use different practices to manage different types of employees (Lepak & Snell, 1999). Therefore, we targeted customer-contact employees as the subjects of HRM practices to reduce the ambiguity of managers' understanding. Although all stores belonged to the same company, we were assured that implementation of HRM practices varied across stores. We received responses from all store managers. Two provided incomplete information, and, thus, their stores were excluded from the rest of the data collection.

At Time 2, we collected the second wave of data. Because six of the 198 stores had been closed during this period, we distributed two different surveys to store managers and customer-contact employees of the remaining 192 stores. Customer-contact employees in each store were asked to rate the service leadership of their store manager and the service climate of their units. Store managers were asked to assess employees' collective customer knowledge and the service performance of their stores as a whole. We received responses from 167 managers and 628 employees of 167 stores, for response rates of 84% and 85%, respectively. Using store demographic information provided by the company, we checked potential response bias by comparing the responding 167 stores with the nonresponding stores and found no significant mean differences in store age, store area, number of employees, and ratings of Service-Oriented HPWSs. To ensure the reliability of store mean scores, we dropped 16 stores with fewer than three employee respondents. This criterion has been used in previous studies involving data aggregation (e.g., Glomb & Liao, 2003; Lam, Huang, & Janssen, 2010; Leslie, Snyder, & Glomb, 2013). We further excluded nine stores due to incomplete manager questionnaires, resulting in a final sample of 142 stores. Except for the difference in the number of employees between the final sample and the dropped 25 stores, $M_{\text{difference}} = 0.60$, $t(165) = 2.10$, $p < .05$, we found no significant mean differences in store age, store area, or ratings of Service-Oriented HPWSs. The final sample included a total of 569 employee respondents, and the average number of employee respondents per store was 4.01 ($Mdn = 4.00$, $SD = 1.15$ [range: 3–9]). The average within-store response rate was 90%, and 93% of the 142 stores had at least 75% of employees who responded to our surveys.

At Time 3, we asked the top financial executive of the company to provide financial performance data for the second quarter (i.e., April, May, and June) of 2013. We also asked the company to provide the demographic information (e.g., store age, number of employees, store area) and the financial performance for the previous year of each store as control variables. On average, the 142

stores had operated for 5.48 years ($SD = 3.43$), with an average number of employees of 4.50 ($SD = 1.24$) and an average store area of 93.63 square meters ($SD = 62.93$). All 569 employee respondents were female. They had an average age of 28.30 years ($SD = 5.93$) and an average store tenure of 16.60 months ($SD = 18.56$).

Measures

The survey items used in this study were originally written in English. We followed the commonly used back-translation procedure proposed by Brislin (1986) to translate them into Chinese. We measured Service-Oriented HPWSs and service leadership on a 5-point Likert-type scale (1 = strongly disagree, 5 = strongly agree) and used a 7-point Likert-type scale to assess collective customer knowledge and service performance (1 = strongly disagree, 7 = strongly agree) and service climate (1 = very poor, 7 = excellent), with higher scores representing greater standing on the variable of interest. We used a different number of anchor points to assess variables rated by a common source to reduce common method variance (N. P. Podsakoff, Whiting, Welsh, & Mai, 2013). Moreover, financial performance was represented by two indicators—operating profit margin and sales growth rate—collected from the company's archival data.

Service-Oriented HPWSs. To measure Service-Oriented HPWSs, we used the full scale developed by Chuang and Liao (2010). Store managers were asked to assess the use of six HRM practices: staffing (five items [e.g., "Recruitment emphasizes traits and abilities required for providing high-quality of customer services"]), training (five items [e.g., "High-quality of customer services is emphasized in training"]), performance appraisal (six items [e.g., "Meeting customers' needs is emphasized in performance appraisals"]), compensation and rewards (seven items [e.g., "The store rewards employees for new ideas for improving customer services"]), involvement and participation (seven items [e.g., "Employees have discretion in handling customers' additional requests"]), and caring (five items [e.g., "The store considers employee off-work situations {family, school, etc.} when making schedules"]). We chose Chuang and Liao's measure for two primary reasons. First, this measure has been validated in a Chinese context similar to that of the current study. Second, this measure targets HRM systems specifically to customer service, which is consistent with the conceptualization of Service-Oriented HPWSs in this study.

Service-Oriented HPWSs have been considered as a formative construct for which a strong internal consistency is not required to justify the unidimensionality of the measure (e.g., Delery, 1998; Jiang et al., 2012). However, Chuang and Liao's (2010) measure directs all practices to a common objective (i.e., high-quality service), so for a store aiming to use HRM practices to enhance its customer service, it is reasonable to observe high intercorrelations among practices within Service-Oriented HPWSs. Therefore, we found a Cronbach's alpha of .84 for Service-Oriented HPWSs in this study, which was close to .92 found by Chuang and Liao (2010), and we calculated the mean scores of all practices to represent this variable.

Service leadership. We asked nonmanagerial employees to evaluate their store managers' leadership in terms of customer service. As Schneider et al. (2005) did, we used the four-item scale

developed by Schneider et al. (1998) in this study. A sample item is “My store manager removes obstacles which prevent us from producing high-quality service.” To aggregate this measure from the individual level to the store level, we calculated the interrater reliability (i.e., intraclass correlation coefficient [ICC]1 and ICC2) and within-store interrater reliability agreement (i.e., r_{wg} and $r_{wg(j)}$) as suggested by Bliese (2000). ICC1 and ICC2 were .29 ($p < .01$) and .62, respectively, indicating that a significant amount of variance for this variable resided at the store level and that the mean score was reliable at the store level. In addition, we found a strong consensus of employees’ ratings within the same stores, with a median r_{wg} and $r_{wg(j)}$ of .93 and .97, respectively. On the basis of these results, we ensured that service leadership was a shared construct and aggregated store employees’ responses to the store level.

Collective customer knowledge. Following previous studies assessing human capital with a direct unit-level measure (e.g., Skaggs & Youndt, 2004; Subramaniam & Youndt, 2005; Takeuchi et al., 2007), we asked store managers to evaluate collective customer knowledge possessed by the store employees they supervised using the five-item scale developed by Bettencourt et al. (2001). Sample items are “Our employees have a number of strategies for dealing with different customers and situations” and “Our employees’ knowledge of different types of customers is very broad.” The Cronbach’s alpha for this measure was .80.

Service climate. Like service leadership, service climate was reported by store employees. Schneider et al.’s (1998) seven-item scale for global service climate was used to measure this variable. These items involved employees’ shared evaluations of their stores’ efforts in terms of customer service, such as “The tools, technology, and other resources provided to employees to support the delivery of superior quality work and service” and “The overall quality of service provided by our store.” ICC1 and ICC2 for this measure were .40 ($p < .01$) and .73, respectively, and the median r_{wg} and $r_{wg(j)}$ were .93 and .97, respectively. Overall, these statistics exceeded the levels suggested by previous research dealing with aggregation (Bliese, 2000). Therefore, we aggregated individual ratings of service climate to the store level.

Service performance. Store managers were asked to evaluate the service performance of their stores. The seven items used in Chuang and Liao (2010), which were adapted from Liao and Chuang (2004), were used to assess this variable. Sample items are “Our employees are able to help customers when needed” and “Our employees suggest items customers might like but did not think of.” The Cronbach’s alpha for this measure was .82.

Financial performance. The company provided two indicators of financial performance—operating profit margin and sales growth rate—for the second quarter of 2013. Operating profit margin was the ratio of operating income (profit) divided by net sales of individual stores. The top financial executive of the company was concerned with releasing raw data of operating profit margin and, thus, asked the finance department to code this variable on a nine-point scale with an interval of 5% (i.e., $1 = p < -5\%$, $2 = -5\% \leq p < 0\%$, $3 = 0\% \leq p < 5\%$, $4 = 5\% \leq p < 10\%$, $5 = 10\% \leq p < 15\%$, $6 = 15\% \leq p < 20\%$, $7 = 20\% \leq p < 25\%$, $8 = 25\% \leq p < 30\%$, $9 = p \geq 30\%$, with p representing operating profit margin). The sales growth rate was calculated by dividing the difference between the sales amount of the current quarter and that of the corresponding quarter one year

earlier by the sales amount of the corresponding quarter one year earlier. The company provided us with the raw data of the sales growth rate without transformation.

Control variables. We included several control variables in the analyses. Store age and store size were controlled because researchers have found that age and size influence the use of Service-Oriented HPWSs and unit performance (e.g., Bae & Lawler, 2000; Shaw, Gupta, & Delery, 2005). Store age was measured by the number of years the store had been in operation. Store size was measured by two indicators—the number of full-time employees and the number of square meters in the store area. In addition, we controlled for operating profit margin and sales growth rate in the previous year, because studies have shown that past performance may influence the use of Service-Oriented HPWSs (e.g., Piening, Baluch, & Salge, 2013) or eliminate the relationship between Service-Oriented HPWSs and future performance (e.g., Wright et al., 2005). Operating profit margin ($t-1$) was measured as the total operating income (profit) divided by the total net sales of the previous year, and the sales growth rate ($t-1$) was measured as the average sales growth rate of the four quarters of the previous year.

Results

Confirmatory Factory Analyses

We conducted a series of maximum likelihood confirmatory factor analyses (CFAs) in LISREL 8.72 to determine the distinctiveness of the study variables measured by the use of questionnaires (i.e., Service-Oriented HPWSs, service leadership, collective customer knowledge, service climate, and service performance). We first aggregated the items of service leadership and service climate from the individual level to the store level and then used the covariance matrix among variables at the store level as the input for CFA. Given the length of the Service-Oriented HPWSs measure, we calculated the mean score of each practice and used the six mean scores as indicators for Service-Oriented HPWSs. As shown in Table 1, the hypothesized five-factor model fit the data well, $\chi^2(df = 367, N = 142) = 635.08$, RMSEA = .07, standardized root mean square residual (SRMR) = .07, comparative fit index (CFI) = .93. Against this baseline five-factor model, we tested four alternative models. The first three models were tested to determine whether variables rated by the same informants could be distinguished from one another: a four-factor model combining service leadership and service climate into one factor; a three-factor model constraining Service-Oriented HPWSs, collective customer knowledge, and service performance to be part of the same factor; and a two-factor model combining service leadership and service climate and collapsing Service-Oriented HPWSs, collective customer knowledge, and service performance. In addition, we tested a single-factor model combining all five variables into one overall factor. As shown in Table 1, all alternative models fit the data significantly worse than did our theoretical model, thus suggesting the conceptual distinctions among the five variables.

Tests of Hypotheses

In Table 2, we present the means, standard deviations, and zero-order correlations among all study variables. We found that

Table 1
Comparison of Factor Structures

Model	$\chi^2(df)$	$\Delta\chi^2(df)^a$	RMSEA	SRMR	CFI
1. The hypothesized five-factor model	635.08 (367)**		.07	.07	.93
2. A four-factor model combining service leadership and service climate	1051.45 (371)**	416.37 (4)**	.11	.09	.86
3. A three-factor model combining Service-Oriented HPWSs collective customer knowledge, and service performance	892.19 (374)**	257.11 (7)**	.10	.09	.88
4. A two-factor model combining service leadership and service climate and collapsing Service-Oriented HPWSs collective customer knowledge, and service performance	1304.53 (376)**	669.45 (9)**	.13	.10	.81
5. A single-factor model combining all measures	1914.40 (377)**	1279.32 (10)**	.17	.14	.73

Note. $N = 142$. HPWSs = high-performance work systems; RMSEA = root mean square error of approximation; CFI = comparative fit index; SRMR = standardized root mean square residual; df = degrees of freedom.

^a All models were compared with Model 1.

** $p < .01$.

none of the control variables were significantly related to Service-Oriented HPWSs, service leadership, collective customer knowledge, service climate, or service performance but that most of the control variables were significantly associated with one or two financial variables. Therefore, we included the control variables only when predicting the two financial outcomes, not for other outcomes.

To test our theoretical model involving both moderation and mediation hypotheses, we used path analysis conducted in LISREL 8.72 and followed the procedure outlined by Mathieu, Tannenbaum, and Salas (1992). This procedure has been considered “especially useful when testing more complicated theoretical models that include both mediated and moderated relationships” (Cortina, Chen, & Dunlap, 2001, p. 358) and has been applied in many recent studies (e.g., Bell & Kozlowski, 2008; Dulac, Coyle-Shapiro, Henderson, & Wayne, 2008). First, we calculated the scale scores for all variables involved in the analyses and mean-centered the scale scores before creating the latent variables. Second, because of the sample size ($N = 142$), we used scale scores as single indicators of the latent variables and set the path from a latent variable to its scale score to the square root of the reliability of the respective measure (i.e., $\sqrt{\text{reliability}}$). The path’s random error variance was set to 1 minus its reliability

multiplied by the variance of its scale score (i.e., $[1 - \text{reliability}] \times \text{variance}$). For the variables measured at the store level (i.e., Service-Oriented HPWSs, collective customer knowledge, and service performance), we used Cronbach’s alpha as the measure of reliability. For the aggregated variables (i.e., service leadership and service climate), we used ICC2 as the measure of reliability. For the variables measured by the single-item measures (i.e., control variables and the two financial dependent variables), we used a reliability of .90, as suggested by Mathieu et al. (1992). Third, we used the product between mean-centered scale scores of Service-Oriented HPWSs and service leadership as the single indicator of the latent product term. To calculate the reliability of the product term, we followed Mathieu et al. (1992) in using the formula developed by Bohrnstedt and Marwell (1978): $(\text{reliability}_{\text{HPWSs}} \times \text{reliability}_{\text{service leadership}} + r^2)/(1 + r^2)$, where r is the correlation between Service-Oriented HPWSs and service leadership. Then we used this reliability to calculate the factor loading and error variance for the latent product term.

In Figure 2, we present the results of all relationships proposed in the current research. In general, the model provided a good fit to the data, $\chi^2(df = 29, N = 142) = 36.35, p > .05$, RMSEA = .04, SRMR = .05, CFI = .97). Hypotheses 1–4 focused on the main relationships of Service-Oriented HPWSs and service lead-

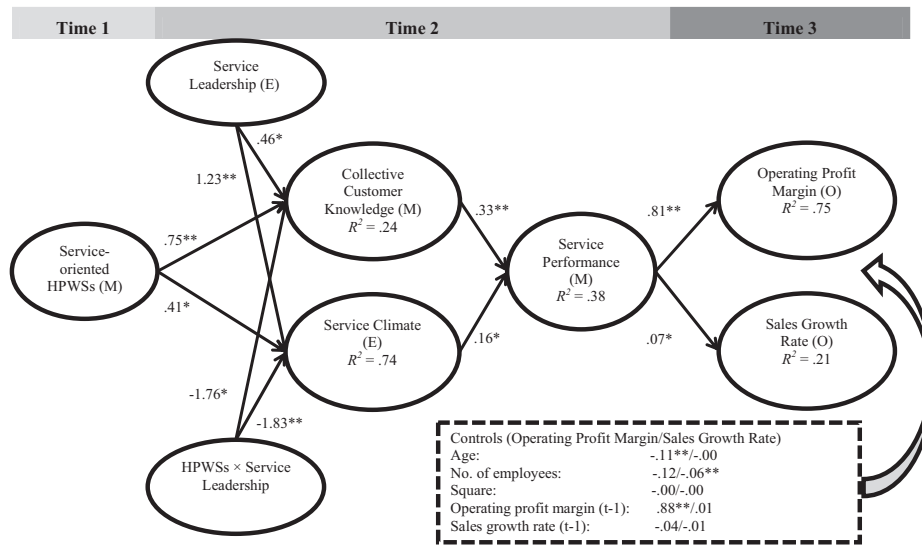
Table 2
Means, Standard Deviations, and Correlations of Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1. Store age	5.48	3.43											
2. Number of employees	4.50	1.24	.34**										
3. Store area	93.63	62.93	.11	.28**									
4. Service-Oriented HPWSs	3.74	.32	-.17	-.07	-.03	(.84)							
5. Service leadership	4.13	.43	-.09	.00	.03	.08	(.61 ^a)						
6. Service climate	5.31	.64	.12	.03	-.04	.19*	.50**	(.73 ^b)					
7. Collective customer knowledge	5.62	.73	-.03	.01	.02	.26**	.12	.35**	(.80)				
8. Service performance	6.20	.49	.02	.03	-.09	.15	.18*	.35**	.48**	(.82)			
9. Operating profit margin ($t - 1$)	6.27	2.08	.24**	.37**	-.14	-.05	-.01	.06	.15	.16			
10. Sales growth rate ($t - 1$)	.66	2.89	-.06	-.09	-.01	-.07	-.01	-.04	.01	.07	.02		
11. Operating profit margin	6.63	2.11	.03	.20*	-.18*	-.05	-.02	.03	.17*	.29**	.74**	-.01	
12. Sales growth rate	1.23	.18	-.11	-.29**	-.15	.10	-.08	-.04	.02	.19*	.02	-.11	.35**

Note. $N = 142$. Reliabilities are listed in parentheses. HPWSs = high-performance work systems; t-1 indicates financial performance of the prior year.

^a ICC(2) is reported as the reliability of the store-mean of service leadership and service climate.

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



Note. *N* = 142. The path coefficients are the unstandardized coefficients from LISREL's default output. HPWSs = high-performance work systems; M = store manager-reported; E = employee-reported; O = objective information. χ^2 (29) = 36.35, $p > .05$, RMSEA = .04, SRMR = .05, CFI = .97.

* $p < .05$, ** $p < .01$

Figure 2. Results of Hypothesized Theoretical Model.

ership with collective customer knowledge and service climate. As shown in Figure 2, Service-Oriented HPWSs were positively related to both collective customer knowledge ($b = 0.75, p < .01$) and service climate ($b = 0.41, p < .05$). Similarly, service leadership had significantly positive relationships with both collective customer knowledge ($b = .46, p < .05$) and service climate ($b = 1.23, p < .01$). Therefore, Hypotheses 1–4 were supported.

Hypotheses 5 and 6 proposed the influences of the interactions between Service-Oriented HPWSs and service leadership on collective customer knowledge and service climate. As Figure 2 shows, the product term was significantly and negatively related to both collective customer knowledge ($b = -1.76, p < .05$) and service climate ($b = -1.83, p < .01$). To better interpret the interaction patterns, we considered service leadership as the primary independent variable and Service-Oriented HPWSs as the moderator for an instance and plotted the relationships between service leadership and collective customer knowledge and service climate at low and high levels (± 1 standard deviation from the mean) of Service-Oriented HPWSs by following Aiken and West's (1991) procedure. As presented in Figure 3, when Service-Oriented HPWSs were high, collective customer knowledge was always high and not influenced by service leadership, simple slope = $-0.10, t(138) = -.34, ns$. However, when Service-Oriented HPWSs were low, the relationship between service leadership and collective customer knowledge was significantly positive (simple slope = $1.02, t(138) = 3.18, p < .01$). Similarly, Figure 4 shows that service leadership was more positively related to service climate when Service-Oriented HPWSs were low (simple slope = $1.82, t(138) = 5.74, p < .01$) than when it was high (simple slope = $.64, t(138) = 2.36, p < .05$), thus supporting Hypotheses 5 and 6.

Hypotheses 7 and 8 predicted that service performance would fully mediate the relationships of collective customer knowledge and service climate with the two financial outcomes. As Figure 2 shows, all proposed paths were significant in the directions as we expected. The joint significant paths from collective customer knowledge and service climate to service performance and from service performance to the two financial outcomes suggest that the indirect relationships of collective customer knowledge and service climate with the two financial outcomes via service performance were supported (MacKinnon, Lockwood, Hoffman, West,

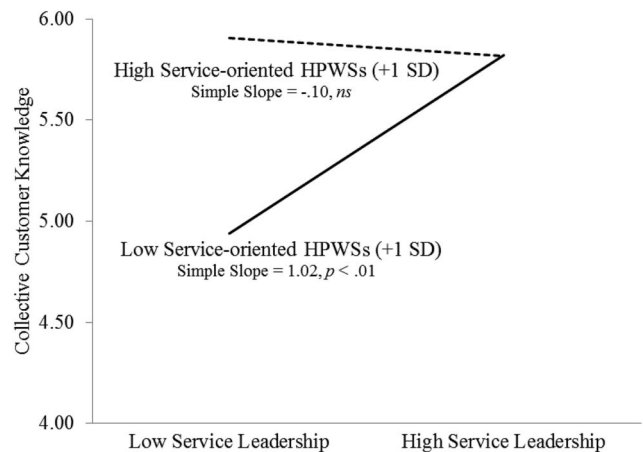


Figure 3. Moderating effect of Service-Oriented high-performance work systems (HPWSs) on the relationship between service leadership and collective customer knowledge.

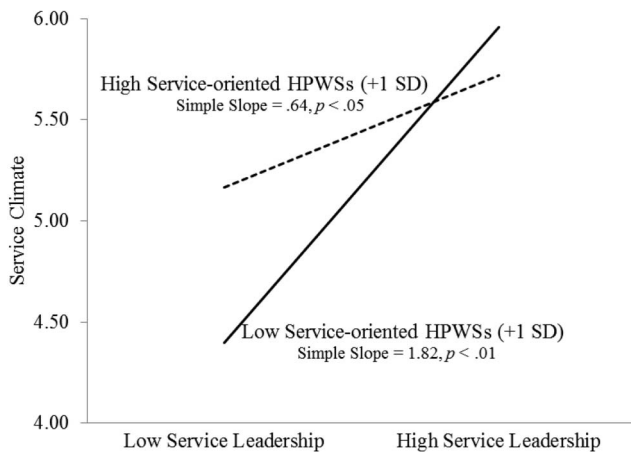


Figure 4. Moderating effect of Service-Oriented high-performance work systems (HPWSs) on the relationship between service leadership and service climate.

& Sheets, 2002). To further confirm the significance of the indirect relationships, we used Program PRODCLIN conducted in *RMediation* (MacKinnon, Fritz, Williams, & Lockwood, 2007) to estimate the 95% confidence intervals (CIs) for the indirect effects on the basis of the distribution-of-the-product method. This approach has been shown to provide more accurate Type I error rates and greater power than the Sobel test (MacKinnon et al., 2007). The indirect relationships between collective customer knowledge and the two financial outcomes through service performance were .27 (for operating profit margin [95% CI = .10–.44]) and .02 (for sales growth rate [95% CI = .02–.03]). Both CIs excluded the zero value, indicating the significance of the indirect relationships. Similarly, the indirect relationships between service climate and operating profit margin (indirect effect = .13, 95% CI = .01–.29) and sales growth rate (indirect effect = .01, 95% CI = .00–.02) via service performance were also significant. Moreover, we added the direct paths from collective customer knowledge and service climate to the two financial outcomes. All the direct paths were nonsignificant, and the inclusion of the direct effects did not significantly improve our model fit, $\Delta\chi^2(df = 4, N = 142) = 5.71, p > .05, RMSEA = .04, SRMR = .04, CFI = .98$. The results suggest that the proposed full mediation model fit the data better than an alternative partial mediation model, thus supporting Hypotheses 7 and 8.

Hypothesis 9 posited a mediated moderation model in which collective customer knowledge and service climate, as well as service performance, mediate the interactive effect of Service-Oriented HPWSs and service leadership on financial performance. Preliminary path analyses showed some support for the mediated moderation model given the significant linkages presented in Figure 2. Our mediated moderation model is analogous to the first-stage moderation model in Edwards and Lambert (2007) and Model 2 in Preacher, Rucker, and Hayes (2007). A common approach to testing a mediated moderation model is to examine the conditional indirect effects of the independent variable on the outcome variable at different levels of the moderator (e.g., Gully, Phillips, Castellano, Han, & Kim, 2013; Liu, Chen, & Yao, 2011). However, our model is slightly

different from the basic form of a mediated moderation model because we propose a mediated moderation model in which the interactive effect between Service-Oriented HPWSs and service leadership is connected to two financial outcomes through two-step mediators (first collective customer knowledge and service climate and then service performance). To facilitate the interpretation of our mediated moderation model, we again treated service leadership as the independent variable and Service-Oriented HPWSs as the moderator for example. So the conditional indirect relationships between service leadership and financial outcomes through two-step mediators can be expressed as $(a_1 + a_3W) \times b_1 \times c_1$, where a_1 and a_3 denote the path coefficients of a first-step mediator (collective customer knowledge and service climate) regressed on service leadership and the interaction between Service-Oriented HPWSs and service leadership, b_1 and c_1 refer to the path coefficients linking a first-step mediator to a second-step mediator (e.g., from collective customer knowledge to service performance) and a second-step mediator to a dependent variable (e.g., from service performance to operating profit margin), and W indicates different levels of Service-Oriented HPWSs.

A conventional approach to detecting the presence or absence of indirect effects is to divide an indirect effect by its standard error and compare the resulting ratio with the normal distribution (e.g., Baron & Kenny, 1986). Many researchers have challenged this approach, because the product term representing an indirect effect does not always have a normal distribution (Edwards & Lambert, 2007; Preacher et al., 2007). To deal with this limitation, bootstrapping has been recommended to estimate an indirect effect and to establish a CI around the indirect effect. By following Hayes, Preacher, and their colleagues' approach (Hayes, Preacher, & Myers, 2011; Preacher et al., 2007), we calculated bootstrapped indirect relationships between service leadership and the two financial outcomes and their confidence intervals at different levels of Service-Oriented HPWSs with 5,000 resamples.

The results of the mediated moderation model are presented in Figures 5, 6, 7, and 8. Horizontal axes list different values of Service-Oriented HPWSs in standard deviation units, and the vertical axes indicate the magnitude of indirect relationships between service leadership and financial outcomes through different mediating mechanisms. For example, as shown in Figure 5, the indirect relationship between service leadership and operating profit margin through collective customer knowledge and service performance was significant and positive when Service-Oriented HPWSs were low (e.g., indirect effect = .27, 95% CI = .02–.52 for 1 standard deviation below the mean). However, the indirect effect became less positive or insignificant with increase in Service-Oriented HPWSs (e.g., indirect effect = $-.03$, 95% CI = $-.19$ –.14 for 1 standard deviation above the mean). Similarly, as shown in Figure 6, the indirect relationship between service leadership and operating profit margin through service climate and service performance became weaker as Service-Oriented HPWSs increased. We obtained similar results for the indirect relationships between service leadership and sales growth rate through the two mediation processes and found that the indirect relationships through both mediation processes were significant when Service-Oriented HPWSs were low but nonsignificant when they were

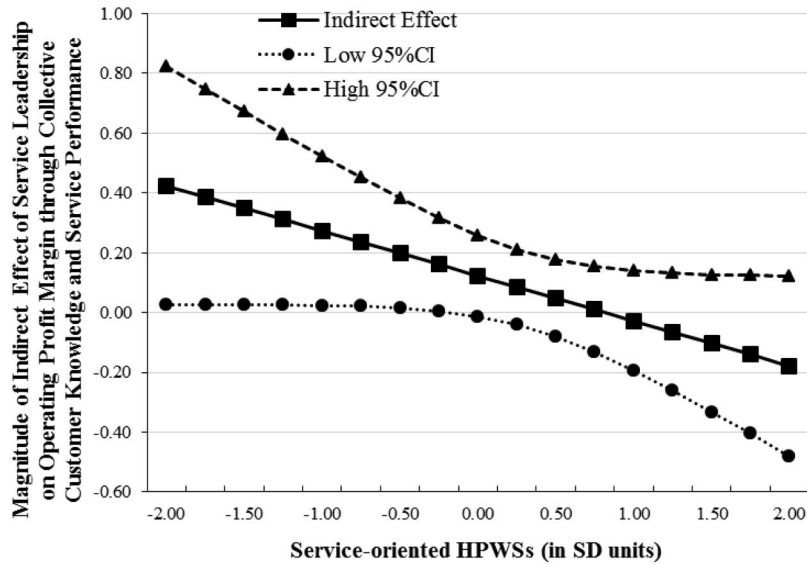


Figure 5. Conditional indirect relationship between service leadership and operating profit margin through collective customer knowledge and service performance at different levels of Service-Oriented high-performance work systems (HPWSs).

high (see Figures 7 and 8). Combined, these findings provided support for Hypothesis 9.

Discussion

The purpose of this study was to extend previous research by testing the simultaneous mediating influences of human capital and organizational climate on the relationships between organizational antecedents and organizational performance and by examining the interactive effects of HRM practices and leadership on human capital and organizational climate. By examining the pro-

posed relationships in the service context, we found that Service-Oriented HPWSs and service leadership weakened the positive influence of one another on both collective customer knowledge and service climate. Further, we found that collective customer knowledge and service climate, as well as service performance, subsequently mediated the interactive effects of Service-Oriented HPWSs and service leadership on two financial outcomes. These findings have important implications for both theoretical development and managerial practices, as we discuss in the following two sections.

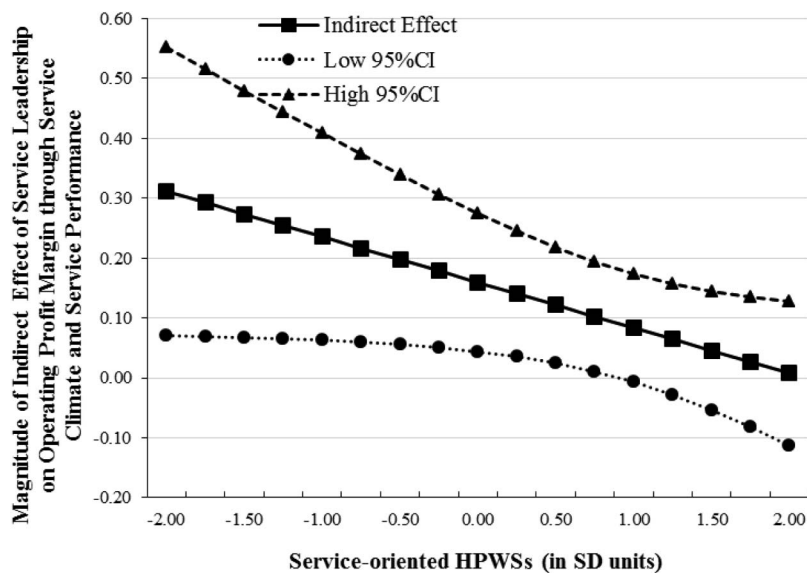


Figure 6. Conditional indirect relationship between service leadership and operating profit margin through service climate and service performance at different levels of Service-Oriented high-performance work systems (HPWSs).

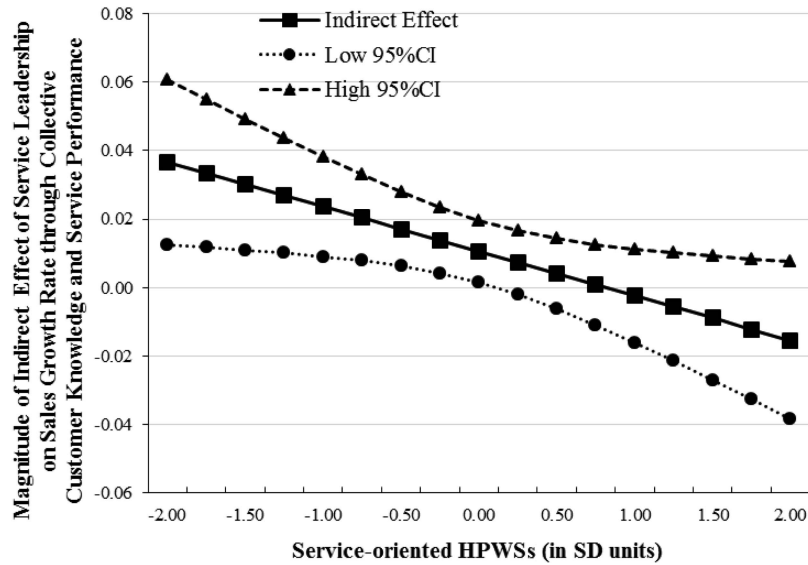


Figure 7. Conditional indirect relationship between service leadership and sales growth rate through collective customer knowledge and service performance at different levels of Service-Oriented high-performance work systems (HPWSs).

Theoretical Implications

This study first integrated the human capital perspective and the organizational climate perspective to examine the mediating mechanisms of the relationships between organizational antecedents and service and financial performance in the service context. Even though previous studies have separately examined the influence of human capital and organizational climate (e.g., Ployhart et al., 2009; Schneider et al., 2005), little effort has been devoted to examining their mediating roles at the same time. Thus, this study has extended previous research by demonstrating the simultaneous

mediating roles of collective customer knowledge and service climate. Our findings suggest that both human capital and organizational climate are important and may contribute to organizational effectiveness in different respects. This is consistent with the argument that organizational climate is a situational force driving employees' efforts (e.g., Ehrhart et al., 2011; McKay et al., 2011), which is distinct from KSAOs required by task performance (Ployhart et al., 2009).

A more important contribution of this study lies in its examination of the influence of the interaction between Service-Oriented HPWSs and service leadership on collective customer knowledge

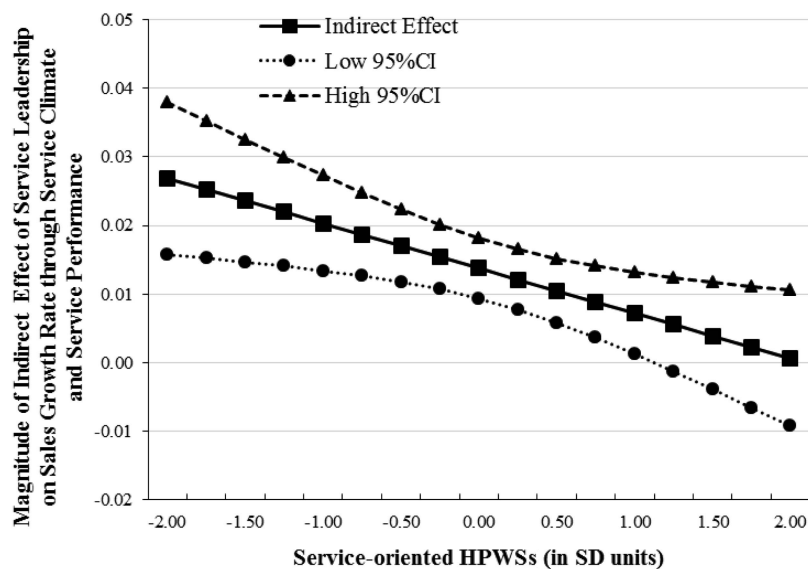


Figure 8. Conditional indirect relationship between service leadership and sales growth rate through service climate and service performance at different levels of Service-Oriented high-performance work systems (HPWSs).

and shared service climate perceptions. Consistent with the substitutes-for-leadership model (e.g., Kerr, 1977; Kerr & Jermier, 1978) and recent empirical evidence in strategic HRM research (Chuang et al., *in press*), we found that Service-Oriented HPWSs and service leadership reduced the positive influence of one another on collective customer knowledge and service climate, such that one factor is extremely important when the other is missing but may not be necessary when the other already exists. By revealing these interactive effect in service contexts, this study has extended the literatures of both human capital and organizational climate. For the human capital literature, previous research has almost exclusively focused on the impact of HRM practices (Nyberg et al., 2014). The present research has thus added to the literature by suggesting that leadership may serve as another antecedent and work with HRM practices in a substitutive way to affect unit-level human capital. By examining the interaction between Service-Oriented HPWSs and service leadership, this study also complements existing climate research that has focused only on the main effects of HRM practices and leadership. Our findings suggest that HRM practices and leadership may not always positively affect service climate, as has been found in previous research (e.g., Chuang & Liao, 2010; Schneider et al., 2005). Instead, the effectiveness of one factor may depend on the presence of the other, and using both may not necessarily lead to better outcomes than using either one alone.

It is worth mentioning that Service-Oriented HPWSs and service leadership may substitute for one another's influence on different employee outcomes to different extents. In terms of collective customer knowledge, we found that the two organizational antecedents completely substituted for one another, such that either Service-Oriented HPWSs or service leadership could enhance collective customer knowledge, but having both did not ensure even higher collective customer knowledge. However, we found that Service-Oriented HPWSs and service leadership only partially substituted for one another's influence on service climate. In this case, the positive relationship between service leadership and service climate was weakened by a high level of Service-Oriented HPWSs but still remained significant. This suggests that service leadership may still be helpful for enhancing service climate, even when service units provide Service-Oriented HPWSs. One possible explanation for the difference in the interactive effect relies on the difference between collective customer knowledge and service climate. Once employees have developed collective customer knowledge through formal HRM practices, this kind of human capital may lie within employees for a long time, thus leaving little room for service leadership to make an additional contribution if it has similar functions to Service-Oriented HPWSs. However, employees' perceptions of the extent to which high-quality service is emphasized in their work units may be more dependent on their day-to-day experience. Even though HRM practices like performance-based compensation and participation in decision making can emphasize the importance of service in general, service leaders may still facilitate service climate through their daily interactions with employees. Moreover, the difference in the interactive effect may also be attributed to the stronger influence of service leadership on service climate than on collective customer knowledge. When the influence is strong, a full substitutive effect may be less likely to exist. Having said this, we expect more research efforts to verify our findings in the future.

In spite of our findings, we are aware of other possibilities of the influence of the interaction between HRM practices and leadership on employee outcomes. For example, Bowen and Ostroff (2004) suggested that leaders serve as interpretive filters of HRM practices and, thus, help convey messages of HRM practices to employees about expected behaviors. In this case, HRM practices and leadership may work in a synergistic way to enhance the influences of one another on employee outcomes. This argument, however, may not be applicable to the relationship between Service-Oriented HPWSs and service leadership in the present study. Distinct from leadership behavior emphasizing social relationships with employees (e.g., open communication, mutual respect and trust), service leadership is more task oriented (Bowen & Schneider, 2014). Thus, service leaders may devote more attention to service-related activities but not necessarily engage in communications to help employees interpret HRM practices. In addition, our operationalization of Service-Oriented HPWSs focused on the implementation, rather than the intention, of HRM practices. The influence of implemented HRM practices may be less affected by the extent to which leaders can translate the information of HRM practices to employees. Nevertheless, we acknowledge that other types of HRM practices and leadership may interact in different ways to affect different types of employee outcomes in different contexts, and we encourage more research efforts to delve deeper into this issue in the future.

This study also sheds light on the mediating mechanisms through which distal organizational factors can be related to service and financial outcomes in service contexts. Viewing Service-Oriented HPWSs as a moderator, we found that the indirect relationships between service leadership and the two financial outcomes were significantly positive when Service-Oriented HPWSs were low but became nonsignificant when Service-Oriented HPWSs were high. These findings suggest that the interaction between Service-Oriented HPWSs and service leadership not only affects the intermediate variables but also holds for distal financial outcomes through the mediating mechanisms. Although the mediating process of the influence of HRM practices or leadership on financial performance has been suggested and demonstrated in the literature (e.g., Chuang & Liao, 2010; Schneider et al., 2005; Takeuchi et al., 2007), examination of the interaction between these two extends understanding of the mediating process under various conditions and offers new directions for this stream of research.

Managerial Implications

This study has important managerial implications for the enhancement of service quality and financial success in service units. First, the findings reveal two approaches through which managers can achieve service and financial objectives. Managers can focus on employees' knowledge in identifying different types of customers and dealing with customer needs using a variety of strategies. They can also emphasize the importance of high-quality service and create a shared perception of service climate among employees. Both approaches can make unique contributions to fostering desirable service behaviors and, ultimately, financial performance.

The present findings suggest that to develop collective customer knowledge in service units, these units can either invest in HRM practices—such as service training, performance feedback on ser-

vice behaviors, and service-based compensation—or rely on unit leaders' behaviors as models for employees of superior customer service, goal setting for service quality, and provision of support and resources for service delivery. It may not be efficient to invest heavily in both of these approaches at the same time because of their redundant effects. However, to facilitate service climate, service units might consider both service leadership and Service-Oriented HPWSs and remember that the impact of either one is more salient when the other is absent. We suggest that service units should balance their investment in HRM practices and service leadership and choose the less costly alternative to enhance collective customer knowledge and service climate. For example, when an organization has already done extremely well in one area, it may need to carefully consider whether it is still worth fully investing in the other. The substitutive effect also indicates that if one approach is not feasible (e.g., it may take time to establish formal HRM practices), the other (e.g., service leadership) will become extremely important in developing and maintaining collective customer knowledge and service climate.

Strengths, Limitations, and Directions for Future Research

One of strengths of this study is that we collected data from three different sources—managers, employees, and company archives—which reduced the influence of common method variance on the findings (P. M. Podsakoff et al., 2003). Another strength is that we used a time-lagged design with information gathered at three time points, which allowed us to test the proposed causal relationships more rigorously (Schneider et al., 2005). In addition, we controlled for past performance when predicting financial performance and, thus, offered more robust examinations of our research model (Wright et al., 2005).

As with all research, limitations in research design should be mentioned to contextualize interpretation the results of this study. First, although the use of time lags in our research design may have helped to reduce common method biases and allow the drawing of conclusions about causal relationships, the 3-month intervals among the three times of data collections may not have been ideal. Other lengths of time lag (e.g., a few weeks, 6 months, 1 year) have been used in strategic HRM and service fields. Future research could verify our findings by using different time lags and examining whether the choices of time lags affect our main findings. Second, findings from the small retail stores studied here may not generalize to service units with more employees who provide other types of service. Therefore, it would be valuable for future research to extend the current analysis to other types of service units. Third, the use of one company as the source of the sample may limit the generalizability of our findings. However, many studies in the service literature have adopted a similar approach (e.g., Mayer, Ehrhart, & Schneider, 2009; McKay et al., 2011; Schneider et al., 2005) and have suggested that the use of a single company may restrict the range of variables and, thus, provide a conservative examination that is likely to be generalized to other service units. Fourth, we used service units as a specific context for testing our theoretical model, which may limit the generalizability of our findings. Future research could examine the investigated relationships in other contexts (e.g., manufacturing or high-tech units). Fifth, we focused on the service leadership of immediate supervi-

sors rather than mid-level or top-level managers. It is possible that higher level managers may affect human capital and service climate by designing HRM practices and using visionary leadership and, thus, that researchers need to be careful when generalizing our findings to higher level managers.

In addition to these limitations, we also suggest some new directions for future research. First, we considered collective customer knowledge, which has been conceptualized and operationalized in other ways in the literature (e.g., Ployhart et al., 2009, 2011) as a unique type of human capital. Future research may benefit from examining other types of human capital as a mediator. Second, we examined service climate as an example of organizational climate. Future research may apply our research model to organizational climates with other strategic focuses, such as innovation climate and safety climate. Accordingly, researchers might examine the influence of the interaction between other target-oriented HRM systems and leadership behaviors on human capital and organizational climate in different contexts (Jackson, Schuler, & Jiang, 2014). Another potential way to extend the current research would be to explore boundary conditions of the relationships studied here. Previous research has demonstrated that service characteristics (e.g., customer contact frequency, service intangibility) can moderate the positive influence of service climate on customer and financial outcomes (e.g., Dietz, Pugh, & Wiley, 2004; Mayer, Ehrhart, & Schneider, 2009). Bowen and Schneider (2014) have further suggested other factors that may affect the contribution of human capital and service climate to customer and financial performance, such as marketing (e.g., product, price, promotion, place) and competitive environments. Future research could extend ours by exploring how these variables may affect the mediating relationships examined here.

Conclusion

The research model proposed and tested in this study suggests that both collective customer knowledge and service climate are important to service units' ability to deliver high-quality service and to meet financial objectives. More important, we hypothesized and found that Service-Oriented HPWSs and service leadership reduced the impact of one another on employees' collective customer knowledge and service climate. This finding cautions management to be aware of the overlapping functions of HRM practices and leadership in developing human capital and organizational climate but, at the same time, provides an alternative to facilitate the two important mechanisms for organizational effectiveness when one aspect is not around the corner. To achieve their strategic goals more effectively, service units may arrange their time and resources to balance the investment in HRM practices and leadership.

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