The role of top-level supportive leadership: A multilevel, trickle-down, moderating effects test in Chinese hospitality and tourism firms

Meizhen Lin [a], Qian Ling [b],*

[a] *College of Tourism, Huaqiao University, Chenghuabei Road, Quanzhou, Fujian Province, 362021, China*
[b] *School of Tourism Management, South China Normal University, Zhongshan Road, Guangzhou, Guangdong Province, 510631, China*

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ABSTRACT

This study explores and tests the role of top-level supportive leadership on both individual and group members in hospitality and tourism firms, examining the trickle-down model of top-level supportive leadership through not only middle-level supportive leadership, but group cohesion and also moderation of top-level supportive leadership on both middle-level supportive leadership–service quality and group cohesion–service quality relationships, which extend and enrich the trickle-down model of leadership. Hierarchical linear modeling was used to assess a sample of 2009 employee–supervisor pairs across 112 departments in 35 Chinese hospitality and tourism firms. The results suggest that top-level supportive leadership relates positively to employees' service quality, which trickles down through middle-level supportive leadership, excepting group cohesion; top-level supportive leadership strengthens the positive effect of middle-level supportive leadership on employee service quality, triggering positive effects of group cohesion.

1. Introduction

Supportive leadership refers to that a leader is considerate, approachable, and sensitive to followers' needs, cultivating harmonious work relationships among team members (Sharma & Pearsall, 2016). Supportive leadership is especially effective and can benefit hospitality and tourism firms and their employees. From the perspective of hospitality and tourism firms, since service has its own unique characteristics compared with product, such as intangibility, simultaneity of production and consumption, it is almost impossible for service organizations to accurately assess, monitor, or control the service delivery process (Schneider, Smith, & Goldstein, 2000). Therefore, the center of management concern for these firms is to encourage and support subordinates and minimize rules and regulations, not to control and monitor subordinates (Grönroos, 2000). Moreover, while facing challenges from greater reliance on teamwork, and the flattening of organizations (Huertas-Valdivia, Gallego-Burín, & Lloréns-Montes, 2019; Sharma & Kirkman, 2015), there is also a critical need to supportive leadership in contemporary tourism firms to ensure that customer-contact employees or service teams can satisfy the increased requirements of customers timely and flexibly. From the perspective of employees in hospitality and tourism firms, since they need to cope with

workplace difficulties such as heavy workloads, low pay, long and irregular work hours, and role stress which are more prominent in tourism industry (Burke, Koyuncu, Fiksenbaum, & Tekin, 2013; Lin & Ling, 2018; Ling, Liu, & Wu, 2017), they are more likely to expect and require leaders' support directly (Ling et al., 2017). Research on leader support focuses on lower-level rather than top-level leaders (Ng & Sorensen, 2008). Since the influences of multiple levels of leadership are different and "tone at the top" (Mayer, Kuenzi, Greenbaum, Bardes, & Salvador, 2009, p. 2) is vital, the effects of top-level supportive leadership warrant further study. This study tests the effectiveness of top-level supportive leadership in hospitality and tourism firms.

First, the study assesses whether top-level supportive leadership relates to employees' service quality. Since the functions and roles of leaders across levels are not the same, and leadership influence derives from multiple levels and sources (Song, Zhang, & Wu, 2014), the effects of top-level supportive leadership should be considered and clarified. Supportive leadership can be conceptualized as an individual level construct (i.e., individual perceived support from leaders), and as organizational or group-level constructs (i.e., employees' collective perceptions of support from leaders). Extant research conceptualizes supportive leadership as an individual level construct, and studies using hierarchical linear modeling (HLM) to test the effects of leadership at

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* Corresponding author.
E-mail addresses: linmeizhen603@163.com (M. Lin), lingqian219@163.com (Q. Ling).

organizational or group-level is rare. Research questions that involve organizational level phenomena are difficult to address since collecting higher-level data extensively is difficult for researchers (Maynard, Gilson, & Mathieu, 2012), but "multilevel dynamics between supportive leadership and individual outcomes should be elucidated" (Shin, Oh, Sim, & Lee, 2016, p. 56). This study thus uses HLM to investigate cross-level main impacts of top-level supportive leadership (i.e., organizational level) on employee service quality (i.e., individual level).

Second, the study also addresses how top-level supportive leadership affects employee service quality, by assessing two mediators, i.e., middle-level supportive leadership and group cohesion. Based on Mayer et al.'s (2009) trickle-down model, the effects of leadership behaviors flow from higher-level leaders to lower-level leaders and also employees work at frontline. Leadership research assesses the trickle-down effect of various types of top-level leadership behaviors, e.g., safety (Zohar & Luria, 2005), ethical (Mayer et al., 2009), and servant behaviors (Ling, Lin, & Wu, 2016), but not supportive leadership behaviors. As with other types of leadership, top-level supportive leadership trickles down to frontline employees through middle-level supportive leaders because middle-level leaders imitate and learn from top-level leader's supportive behaviors, thus supporting employees with improving work outcomes. Supportive leadership is becoming more and more important in the contexts of work teams because of greater autonomy and job complexity in contemporary business environments (Kirkman & Rosen, 1999), but empirical research on the effectiveness of supportive leadership in the contexts of work teams remains rare (Shin et al., 2016). This study explores the effect of top-level supportive leadership in team contexts by adding group cohesion to the trickle-down model of supportive leadership since group cohesion has a greater direct effect on employee work performance and can be affected by transformational leadership[1] (Pillai & Williams, 2004).

This study also assesses whether top-level supportive leadership influences the effectiveness of mediators (i.e., middle-level supportive leadership and group cohesion) on service quality. Situational leadership theory suggests that an organization's environment affects the effectiveness of leader behaviors (Podsakoff & MacKenzie, 1997). Top-level leaders are representatives of an organization (Stinglhamber & Vandenberghe, 2003) who set the organization's global tone (Mayer et al., 2009), formulate broad policies and objectives (Barnard, 1938), provide strategic visions (Smidt, 1998), and establish an organization's value system (Ireland & Hitt, 1999). Thus, top-level leadership affects an organization's environment, which influences the effectiveness of lower-level leaders' and group members' behaviors. Empirical evidence suggests that top-level empowering leadership moderates middle-level leaders' self-efficacy and their empowering leadership behaviors link (Lin, Ling, Luo, & Wu, 2019), and senior executives' supportive leadership moderates team cohesion and team ambidexterity link (Jansen, Kostopoulos, Mihalache, & Papalexandris, 2016). This study explores moderation of top-level supportive leadership on the effects of both middle-level supportive leadership and group cohesion on employee service quality. Fig. 1 shows the theoretical model.

2. Theory and hypotheses

2.1. Supportive leadership

Supportive leadership refers to that leaders provide full support to employees' work, respect employees, and show concern with employees' emotions and needs (Avolio & Bass, 1995; Podsakoff, MacKenzie, Moorman, & Fetter, 1990), which consists of two dimensions, i.e., personal and esteem support, and enabling job support (Rooney & Gottlieb, 2007). Leaders provide employees with personal and esteem

support by showing concern with and respecting employees, emphasizing on employees' interest, and recognizing the contributions of employees to their organization. Leaders provide employees with enabling job support by motivating employees to be autonomous, communicating openly with employees, guiding and assisting employees to complete tasks (Rooney & Gottlieb, 2007).

Supportive leadership shares both some similarities and important differences with other leadership constructs, such as servant leadership and empowering leadership which have been demonstrated particularly effective in hospitality and tourism firms (Lin et al., 2019; Ling et al., 2016; Raub & Robert, 2012; Wu, Tse, Fu, Kwan, & Liu, 2013). Supportive leadership is a more general type of leadership that encompasses some elements of servant leadership and empowering leadership, such as caring about and respecting employees included in the dimension of personal and esteem support (similar to servant leadership to some extent), and encouraging employees to be autonomous included in the dimension of enabling job support (similar to empowering leadership to some extent). However, supportive leadership has its own distinctive characteristics. Empowering leadership stresses employees' autonomy and independence (Sharma & Kirkman, 2015), servant leaders focus on developing leader–follower relationships and motivating employees' dedication and enthusiasm (Huertas-Valdivia et al., 2019), while supportive leadership pays attention to helping employees to relieve work stress and improving employees' well-being through instrumental and emotional support.

Supportive leadership is characterized by concern and care for followers and creating a supportive work context that promotes harmonious work relationships in groups (Rooney & Gottlieb, 2007; Sharma & Pearsall, 2016) to relieve employees' work stress, improve employees' wellbeing, and decrease presenteeism and absenteeism for employees (Schmid, Jarczok, Sonntag, & Herr, 2018). In addition, supportive leadership also demonstrated to improve employee innovative behaviors (Janssen, 2005), organizational citizenship behaviors (Shin et al., 2016), extra-role performance (Euwema, Wendt, & van Emmerik, 2007), and task performance (Luthans, Norman, Avolio, & Avey, 2008). For hospitality and tourism firms which want to create service excellence for customers, supportive leadership is especially important (Ling et al., 2017). Supportive leadership behaviors and informal interactions with employees shorten distances between leaders and employees, strengthen employees' trust in leaders, and encourage employees to serve customers flexibly (Pfeffer, 1998). When leaders are supportive and considerate, employees treat customers the same way (Peccei & Rosenthal, 2001). However, research on leader support focuses on the effectiveness of lower-level rather than top-level leaders on employee work outcomes (Ng & Sorensen, 2008), and little empirical evidence comes from hospitality and tourism firms (Li, Kim, & Zhao, 2017). The study provides insight into the effectiveness of top-level supportive leadership on employee service quality in hospitality and tourism context.

2.2. Main effects of top-level supportive leadership

Supporting employees' work (Babin & Boles, 1996) and providing critical resources (i.e., tools and training) are the most important ways leaders improve employee job performance (Luthans et al., 2008). Two social-influence theories—social learning and social exchange—explain the effects of supportive leadership on employee job performance. According to social learning theory (Bandura, 1977), an individual learns by modeling the behaviors of role models (Hunter et al., 2013). Followers regard leaders as their role models at work (Mayer et al., 2009) and want to imitate their behaviors (Wood & Bandura, 1989). When leaders engage in supportive leadership behaviors, followers mimic them by providing help and support to customers, improving customers' perceptions of service quality.

Based on the theory of social exchange (Blau, 1964) and the principle of reciprocity (Gouldner, 1960), if an individual does something good

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[1] Supportive leadership is one facet and a sub-dimension of transformational leadership (Avolio & Bass, 1995; Rafferty and Griffin, 2004; Shin et al., 2016).
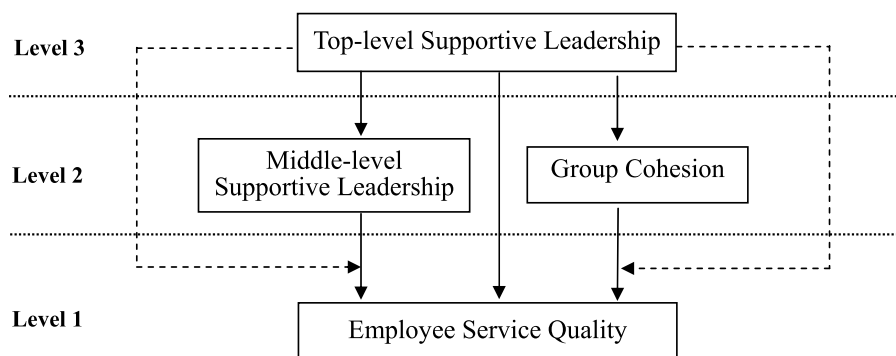
Fig. 1. A multilevel conceptual model.

for others, to maintain good relationships, beneficiary receivers will generate an obligation to repay the benefactor. Top-level leaders support employees in the form of conceiving and communicating the organization's vision, which allows employees to influence organizational decisions, encourages innovation, and provides interesting and challenging work (Locke, 1976). Correspondingly, employees repay top-level supportive leaders by providing quality service to customers and enhancing customers' perceived service quality, since improving service quality is a primary goal for top-level leaders in hospitality and tourism firms. Therefore:

H1. Top-level supportive leadership related positively to employee service quality.

2.3. Mediation through middle-level supportive leadership and group cohesion

Functions and interactions with employees of leaders across levels are different, and leadership at different levels influence employee behaviors differently (Avolio, Zhu, Koh, & Bhatia, 2004). Top-level leaders emphasize leading work, e.g., designing strategic visions and making broad policies (Mayer et al., 2009), which influence employee job outcomes indirectly. In comparison to higher-level leaders, lower-level leaders are proximal to frontline employees, interacting with employees closely and frequently. They are responsible for routine work, such as coordinating daily operations, offering employees daily guidance and direction (Smidt, 1998), and are more effective at influencing employees' behaviors directly (Mayer et al., 2009). According to service profit-chain theory (Heskett & Schlesinger, 1994), internal services drive employee satisfaction, enable delivery of high-value services, and achieve customer satisfaction and profit. Even though middle-level leaders do not provide service to customers directly, their supportive leadership to frontline employees has spillover effect on employee service quality by providing customer-contact employees with both emotional support (i.e., listening to employees' suggestions, views, and ideas, showing concern) and instrumental support (i.e., providing financial assistance, material sources, and needed services). Emotional support can strengthen employees' personal achievement and emotional resources, and instrumental support helps employee cope with workplace stress and satisfy customers' needs directly (Lin & Ling, 2018). Middle-level supportive leadership thus has positive impact on employee service quality.

Based on the Mayer et al.'s (2009) trickle-down model, the indirect influence of top-level leaders flows from lower-level leaders to frontline employees. Based on social learning theory (Bandura, 1977), followers reproduce top-level leader behaviors, including not only frontline employees, but lower-level leaders who are led by top-level leaders. Since lower-level leaders interact with top-level leaders more closely and frequently, and likely view themselves as extensions of top-level leaders (Mayer et al., 2009), they are more likely to learn and mimic the leadership behaviors of top-level leaders. As such, through role modeling,

leadership behaviors flow from top-level leaders to lower-level leaders. Servant leadership behaviors, for example, flow from general managers through department managers to employees' service-oriented behaviors (Ling et al., 2016); ethical leadership behaviors flow from top-level leaders to employees' organizational citizenship behaviors through supervisors (Mayer et al., 2009); safety leadership behaviors of supervisors mediate top managers' safety leadership behaviors and employee safety outcomes link (Zohar & Luria, 2005). Supportive leadership behaviors thus also flow from top-level leaders to frontline employees through middle-level leaders:

H2a. Middle-level supportive leadership mediates the positive influence of top-level supportive leadership on frontline employee service quality.

Group cohesion is "a dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs" (Carron, 1998, p. 213). According to social cognitive theory, group cohesion is the joint forces (e.g., commitment to task, interpersonal attraction, and group pride) that motivate employees to stay in a group (Liu et al., 2017). In a cohesive team, team members receive coworkers' task-oriented aid (Caplan, Cobb, French, van Harrison, & Pinneau, 1975), guidance (Ensher, Thomas, & Murphy, 2001), and friendly and positive affect (Morgeson & Humphrey, 2006), cooperate and support with each other (Griffith, 1988), share responsibilities to complete tasks, participate in team management decisions, and strive to achieve group goals together (Hogg, 1992). Thus, group cohesion is treated as one of the most important factors that influences employees' job performance (Gully, Joshi, Incalcaterra, & Beaubien, 2002).

Chiaburu and Harrison (2008) argue that exchanges between leaders and employees are vertical, which are different from lateral exchanges among coworkers. Vertical leader–employee exchanges are controlled by authority rankings relative to equality matching (Fiske, 1992), and lateral exchanges between coworkers stick to the principle of turn-taking (Kelley & Thibaut, 1978) and reciprocation (Gouldner, 1960). Due to a lack of hierarchy, lateral coworker interactions are less restrictive and more frequent (Chiaburu & Harrison, 2008), and coworker support complements the formal leader support constrained by such discrepancies (Susskind, Kacmar, & Borchgrevink, 2003). Coworkers' presence is greater, which makes employees interact more frequently (Ferris & Mitchell, 1987), and is easier from which to draw emotional and behavioral resources. Thus, group cohesion affects employee job outcomes more directly than supportive leadership does.

Research suggests that in addition to providing employees with material and psychological resources, supportive leadership also triggers coordination among group members (Hochwarter, Witt, Treadway, & Ferris, 2006), and motivates not only individual, but group members' collective job attitudes and behaviors, including group trust (Li et al., 2017), collective organizational citizenship behaviors (Euwema et al., 2007), team cooperation (Shin et al., 2016), and coworker support (Chiaburu & Harrison, 2008). In a word, work teams are influenced by

top-level leader support because it triggers mutual support among group members (Sharma & Pearsall, 2016) and amplifies a collaborative work context in cohesive teams (Jansen et al., 2016). Based on social learning theory (Bandura, 1977) and from a collective perspective, supportive leadership encourages employees to imitate and model their leaders' supportive behaviors collectively, which further creates a cooperative and supportive climate (Shin et al., 2016), facilitates coordination and good social interactions among group members (Morgeson, DeRue, & Karam, 2010), and enhances social support and friendship between group members (House, 1971), thus motivating group cohesion; supportive leadership behaviors cascade from leader to group members. Extant empirical evidence suggests that team cooperation and coworker support mediate the influence of supportive leadership on employee job outcomes (Chiaburu & Harrison, 2008; Shin et al., 2016), and group cohesiveness mediates the influence of a supervisor's transformational leadership on employee organizational commitment and job performance (Pillai & Williams, 2004). The study suggests that the influence of top-level supportive leadership behaviors on employee service quality trickles down through group cohesion:

H2b. Group cohesion mediates the positive influence of top-level supportive leadership on frontline employee service quality.

2.4. Moderation by top-level supportive leadership

Based on situational leadership theory (Podsakoff & MacKenzie, 1997), context substitutes for, neutralizes, or enhances the effects of leadership (Kerr & Jermier, 1978). Service climate, for example, enhances the positive supervisor's transformational leadership–employee service performance link (Liao & Chuang, 2007), enhances the influence of department managers' servant leadership, and substitutes for the influence of general managers' servant leadership on frontline employees' service-oriented behaviors (Ling et al., 2016).

As representatives of the organization, top-level leaders determine visions, policies, objectives, value systems, and set a global tone of the organization. Top-level leadership behaviors reflect the general mode of leadership behaviors engaged in within the entire organization, and represent "a type of 'ambient stimulus' that pervades the work unit" (Liao & Chuang, 2007, p. 1007), which is similar to leadership climate (Chen, Kirkman, Kanfer, Allen, & Rosen, 2007; Shin et al., 2016). Ambient stimuli and leadership climates signal to employees imperatives and how things should be done (Liao & Chuang, 2007), and guide employees' behaviors toward goals (Schneider, 1983). Thus, top-level supportive leadership represents an organizational climate, directing employees to support customers and improve service quality, thus strengthening the positive influence of middle-level supportive leadership behaviors on frontline employees' service quality. Interactions between top-level and middle-level supportive leadership behaviors produce an additive effect, guiding employee behaviors toward quality customer service more effectively. In an environment supported by top-level leaders, employees experience a positive climate of supportive leadership. In such context, they believe supportive behaviors and high-quality service accord with the organization's climate and goals and thus are more likely to imitate middle-level leader support behaviors. When top-level leaders rarely supports employees, even employees who receive support from middle-level leaders feel ambiguous since supportive behavioral signals of leaders at different positions are inconsistent. Thus, the positive middle-level supportive leadership–service quality link is constrained:

H3a. Top-level supportive leadership moderates the effect of middle-level supportive leadership on employee service quality; middle-level supportive leadership has a stronger, positive influence on employee service quality when top-level supportive leadership is high.

Top-level supportive leadership similarly affects the effectiveness of group cohesion. Senior executives' leadership behaviors influence affective and motivational processes in cohesive teams (Jansen et al., 2016). From a resource perspective, leaders are more likely to provide

valuable support since they commonly view support provided to employees as their in-role job, and they have greater skills and expertise in providing such support (Ng & Sorensen, 2008). Thus, supportive leadership leads to more technical work outcomes than group cohesion does. Supportive leaders might also represent a more stable resource; they support employees consistently in the form of answering questions, guiding career development, giving suggestions, and listening to complaints and concerns (Ng & Sorensen, 2008). Contrarily, coworkers might not take obvious and explicit support actions to employees consistently (Larocco, House, & French, 1980), and thus supportive leadership is a more predictable resource, which is more favorable to employee job outcomes than group cohesion is (Ng & Sorensen, 2008). Leaders provide employees with supplementary resources to team members in cohesive teams that match and are conducive to strengthen their capability to improve service quality.

Research suggests that employee job performance is affected by ability, willingness, and opportunity (Blumberg & Pringle, 1982; Lin, Wu, & Ling, 2017). High-level of top-level supportive leadership increases employee's willingness and directs their behaviors to improving service quality, and complementary resources offered by top-level leaders improve their ability to complete service task. Thus, the group cohesion–service quality link strengthens. Without top-level supportive leadership, employees are ambiguous about whether their organizations encourage good service, and are incompetent regarding completing service work effectively due to lack of valuable and stable resources. Therefore, a low degree of top-level supportive leadership weakens the group cohesion–employee service quality link:

H3b. Top-level supportive leadership moderates the effect of group cohesion and employee service quality; group cohesion has a stronger, positive influence on employee service quality when top-level supportive leadership is high.

3. Method

3.1. Research context and data sources

Frontline employees and their direct supervisors from a restaurant chain, twenty-two star-rated hotels, and twelve travel agencies in China were surveyed. Participants worked in frontline service departments of hospitality and tourism firms such as a front office, housekeeping, recreation, food and beverage in hotels, tour guide, sales and marketing in travel agencies, and branches in a restaurant chain. The participants were selected based on the availability of managers who could assist with data collections. Human resources managers assisted by delivering survey packets with return envelopes to more than three customer-contacted employees in each department and more than two departments in each hospitality and tourism firm. Frontline employees rated their perceptions of supportive leadership from top-level leaders (i.e., general managers) and middle-level leaders (i.e., department managers), and group cohesion. Supervisors appraised employees' service quality. Identification numbers were used to match employees' and supervisors' surveys. The questionnaires were complected independently and returned to Human resources department in the sealed envelopes. The researchers didn't pay participants economic or other incentives. During a preliminary study, data was collected from 468 employees in 3 four-to five-star hotels located in southeast China. Results evidenced each measure's reliability and validity, and thus designed the final survey. 3400 employee–supervisor pairs of questionnaires were distributed, and 2390 from employees and 2176 from supervisors were collected. After deleting data from frontline employees whose tenures were fewer than six months, departmental data fewer than three employees, and organizational data fewer than two departments (Ling et al., 2016; Tangirala & Ramanujam, 2008; Tse, Dasborough, & Ashkanasy, 2008), the study finally had 2009 valid employee–supervisor pairs across 112 departments in 35 organizations. The rates of response from employees and their supervisors were

84.05% and 92.33%, respectively. In each department, employees response ranged from 3 to 42; in each organization, departments ranged from 2 to 10. Among employees, 61.5% were female, 58.3% were 16–24 years old, 42.9% had high school or a secondary school education, 73%'s monthly salaries were in the range of RMB801 to RMB2000.

3.2. Instruments

The research used Likert-type scale (7 point) and employed Brislin's (1970) back-translation method to guarantee the quality of translation. In the study, top-level leader is the general manager in the hospitality or tourism firm, middle-level leader is the department manager of the service department, and frontline employees are customer-contact employees in the service department who deliver services to customers directly.

Top- and middle-level supportive leadership. Thirteen and fourteen items from Rooney and Gottlieb's (2007) supportive and unsupportive managerial behaviors scale were used to measure top-level and middle-level supportive leadership, respectively. Items in the scale had the stem of "My organization general manager …" or "My department manager …" The sample item was my organizational manager/department manager "sympathizes with difficulties." Cronbach's alpha coefficient for the two scales were 0.94 and 0.96 respectively.

Group cohesion. Group cohesion was measured using five items from Podsakoff and MacKenzie (1994). A sample item was "Employees in my department stand up for each other." Cronbach's alpha coefficient was 0.93.

Employee service quality. Ten items from Berry, Zeithaml, and Parasuraman (1990) were used to measure service quality. An example item was "The employee is well equipped with job knowledge." One item was added to measure employee's service quality in general. Frontline employees' direct supervisors rated the scale, and the Cronbach's alpha coefficient was 0.96.

Control variables. Following Joshi, Lazarova, and Liao (2009), Peccei and Rosenthal (1997), and Wu et al. (2013), the study controlled for individual demographics at level 1 (i.e., gender, age, education, and salary) and organization characteristics at level 3 (i.e., ownership, industry, and province) to exclude effects on employee service quality.

3.3. Analysis procedure

Tolerance and kurtosis, and skewness were calculated to assess multicollinearity and normality, respectively. Tolerance values were above 0.10, which indicated that multicollinearity was not a problem (Kline, 2011; Tabachnick & Fidell, 2007). Kurtosis (ranged from −8 to 8) and skewness (ranged from −3 to 3) satisfied the requirements of Kline (2011). HLM was used to conduct multilevel analyses and examine our multilevel conceptual model and hypotheses. The study used HLM 3 to test the effects of variables at level 3 and level 2 on variables at level 1, and used HLM 2 to examine the influences of variables at level 3 on variables at level 2. Following Evans (1985) and McClelland and Judd (1993), the study used 0.1 significance to examine cross-level interactions.

4. Results

4.1. Measurement model analysis

Before testing the hypotheses, confirmatory factor analysis (CFA) was used to test the validity of the scales. A model including top-level supportive leadership, middle-level supportive leadership, group cohesion, and employee service quality yielded acceptable fit (χ^2 (164) = 319.86, p = 0.00; CFI = 0.99; NFI = 0.97; SRMR = 0.034; RMSEA = 0.055). Factor loadings ranged from 0.70 (T = 13.15) to 0.90 (T = 20.84); the average variance extracted (AVE) and composite reliability (CR) were greater than the thresholds of 0.5 and 0.7, respectively, which

suggest convergent validity (Table 1). AVEs for each construct were greater than the variance shared with remaining constructs, which suggest discriminant validity (Fornell & Larcker, 1981).

4.2. Aggregation statistics

The feasibility of the aggregated construct (i.e., top-level supportive leadership, middle-level supportive leadership, and group cohesion) were evaluated by calculating r_{wg}, ICC(1), and ICC(2). The mean and median r_{wg} of top-level supportive leadership, middle-level supportive leadership, and group cohesion, were 0.64 and 0.62, 0.71 and 0.75, and 0.69 and 0.75, respectively, above the 0.60 criterion (James, 1982; James, Demaree, & Wolf, 1984). ICC(1) of top-level supportive leadership (ICC(1) = 0.13, F = 5.56, p < 0.01), middle-level supportive leadership (ICC(1) = 0.20, F = 3.57, p < 0.01), and group cohesion (ICC(1) = 0.10, F = 2.13 p < 0.01) were significant. ICC(2) of top-level and middle-level supportive leadership were 0.82 and 0.72, respectively, above the threshold of 0.70 (Bliese, Halverson, & Schriesheim, 2002). Although ICC(2) for group cohesion was 0.53, it was acceptable according to the 0.50 criterion (Klein et al., 2000) and median ICC(2) values of aggregated variables found in the literature (Dineen, Lewicki, & Tomlinson, 2006; Fletcher, Major, & Davis, 2008; Liao &Rupp, 2005; Nishii, Lepak, & Schneider, 2008; Schneider, White, & Paul, 1998; Sowinski, Fortmann, & Lezotte, 2008). Thus, it was justified to aggregating top-level supportive leadership at level 3, and aggregating middle-level supportive leadership and group cohesion at level 2.

4.3. Descriptive statistics

Table 1 shows the means, standard deviations, and intercorrelations among all variables. Intercorrelations indicate that employee gender (r = 0.07, p < 0.01), age (r = 0.05, p < 0.05), education (r = 0.15, p < 0.01), and salary (r = 0.20, p < 0.01) correlate positively with employee service quality. All individual demographics at level 1 and control variables at level 3 were controlled for during subsequent analyses.

4.4. Hypothesis testing

Table 2 shows the results for H1, H2a, and H2b; Table 3 shows the results for H3a and H3b. H1 suggests a direct influence of top-level supportive leadership on employees' service quality. Cross-level main effect analysis using HLM 3 indicates that top-level supportive leadership affects positively on service quality (γ = 0.34, p < 0.05; Model 1 in Table 2), supporting H1.

H2a suggests mediation of middle-level supportive leadership in the top-level supportive leadership and employee service quality link. According to Kenny, Kashy and Bolger's (1998) 4-step procedure for testing mediation, the study used HLM 2 and HLM 3 to test H2a. During Step 1, top-level supportive leadership affected positively on employee service quality (γ = 0.34, p < 0.05; Model 1 in Table 2). In Step 2, top-level supportive leadership affected positively on middle-level supportive leadership (γ = 0.63, p < 0.01; Model 4 in Table 2). In Steps 3 and 4, both top-level supportive leadership and middle-level supportive leadership were assessed, with results suggesting that middle-level supportive leadership relates positively to employee service quality (γ = 0.26, p < 0.01; Model 2 in Table 2), but the impact of top-level supportive leadership on service quality was no longer significant (γ = 0.19, p > 0.1; Model 2 in Table 2). Thus, middle-level supportive leadership fully mediates the top-level supportive leadership and employee service quality link, which supported H2a. A Sobel (1982) test suggests that the indirect effect is significant (z = 2.74, p < 0.01, by one-tailed test).

H2b suggests mediation of group cohesion in the correlation between top-level supportive leadership and employees' service quality. The study again used HLM 2 and HLM 3 to test H2b. In Step 1, top-level supportive leadership affected positively on employee service quality (γ = 0.34, p < 0.05; Model 1 in Table 2). In Step 2, top-level supportive

Table 1

Descriptives, intercorrelations, and internal consistency reliability.

Variable	M	SD	AVE	CR	1	2	3	4	5
Level 1									
1. Gender	1.62	0.48	–	–	–				
2. Age	1.57	0.81	–	–	0.03	–			
3. Education Background	1.99	0.83	–	–	−0.05*	−0.17**	–		
4. Salary	1.90	0.55	–	–	−0.08**	0.21**	0.12**	–	
5. Service Quality	5.47	0.97	0.64	0.95	0.07**	0.05*	0.15**	0.20**	(0.96)
Level 2									
1. MSL	5.47	0.73	0.82	0.90	(0.96)				
2. GC	5.74	0.64	0.73	0.93	0.57**	(0.93)			
Level 3									
1. PRO	2.57	2.89	–	–	–				
2. IND	1.49	0.70	–	–	0.15	–			
3. OWN	1.63	0.60	–	–	−0.15	−0.19	–		
4. TSL	5.06	0.71	0.81	0.90	0.32	0.23	−0.20	(0.94)	

Note: a. *p < 0.05, **p < 0.01.

b. TSL = Top-level Supportive Leadership; MSL = Middle-level Supportive Leadership; GC = Group Cohesion; PRO (Province): 1 = Fujian, 2 = Guangdong, 3 = Beijing, 4 = Shanghai, 5 = Jiangsu, 6 = Ningxia, 7 = Yunnan, 8 = Hubei, 9 = Shandong, 10 = Henan, 11 = Macao; IND (Industry): 1 = hotel, 2 = travel agency, 3 = restaurant; OWN (Ownership): 1 = private-owned, 2 = state-owned, 3 = foreign-owned.

c. Internal reliability coefficients appear in parentheses along the main diagonal at each level.

d. For level 1 measures, N = 2009; for level 2 measures, N = 112; For level 3 measures, N = 35.

Table 2

HLM results: Main and mediating effects.

Level and Variable	Service Quality			MSL	GC
	M1	M2	M3	M4	M5
Level 1					
Gender	0.24**	0.24**	0.24**		
Age	0.05*	0.05	0.05		
Educational Background	0.07	0.08*	0.07		
Salary	0.23**	0.23**	0.23**		
Level 2					
MSL		0.26**			
GC			0.07		
Level 3					
PRO	−0.03	−0.04	−0.03	0.02	−0.02
IND	0.02	0.03	0.01	−0.04	0.07
OWN	0.02	−0.01	0.02	−0.03	0.03
TSL	0.34*	0.19	0.30*	0.63**	0.37**

Note: a. *p < 0.05; **p < 0.01.

b. The meaning of the abbreviations in this table is the same as Table 1.

c. For level 1 measures, N = 2009; for level 2 measures, N = 112; For level 3 measures, N = 35.

leadership affected positively on group cohesion ($\gamma = 0.37$, $p < 0.01$; Model 5 in Table 2). In Steps 3 and 4, both top-level supportive leadership and group cohesion were assessed, with results suggesting that group cohesion does not corelated with service quality ($\gamma = 0.07$, $p > 0.1$; Model 3 in Table 2). Therefore, group cohesion did not mediate the positive top-level supportive leadership and service quality link, suggesting that H2b was not supported.

H3a suggests moderation by top-level supportive leadership on the influence of middle-level supportive leadership on employee service quality. The study used HLM 3 to test H3a. Cross-level moderation analysis shows that the interaction between top-level supportive leadership and middle-level supportive leadership was significant ($\gamma = 0.25$, $p < 0.1$; Model 4 in Table 3). In comparison to Model 3, Model 4 offers an improvement to model fit ($\Delta\chi^2 (2) = 3.69$, $p < 0.1$). The nature of the interaction was assessed by a simple-slope test and HLM Graph Equation (Cohen, Cohen, West, & Aiken, 2003). Shown in Fig. 2, when top-level supportive leadership is high, middle-level supportive leadership affected positively on employee service quality (slope = 0.51, T (31) = 3.29, $p < 0.01$, by one-tailed test); when top-level supportive leadership is low, the positive influence of middle-level supportive leadership on service quality remains significant but reduces (slope = 0.15, T (31) = 1.40, $p < 0.1$, by one-tailed test). Thus, H3a was supported.

H3b suggests moderation by top-level supportive leadership on the effect of group cohesion on employee service quality. HLM 3 was used to test H3b. Model 7 in Table 3 shows that the interaction between top-level supportive leadership and group cohesion was significant ($\gamma = 0.19$, $p < 0.05$). In comparison to Model 6, Model 7 offers an improvement to model fit ($\Delta\chi^2 (2) = 2.72$, $p < 0.1$). The simple-slope test and interaction graph (Fig. 3) suggest that when top-level supportive leadership is high, group cohesion correlates positively with employee service quality (slope = 0.23, T (31) = 1.92, $p < 0.05$, by one-tailed test). However, when top-level supportive leadership is low, the effect of group cohesion on service quality is non-significant (slope = −0.03, T (31) = −0.46, $p > 0.1$, by one-tailed test). Therefore, H3b was supported.

5. Discussion

Based on social exchange and social learning theories, the trickle-down model of leadership, and situational leadership theory, this study explores how top-level supportive leadership affects employee service quality by simultaneously considering two mediators, i.e., middle-level supportive leadership and group cohesion, and assessing moderation by top-level supportive leadership on middle-level supportive leadership/group cohesion–service quality link.

5.1. Theoretical implications and extensions

This study is the first to assess the trickle-down effects of top-level supportive leadership on employee service quality in hospitality and tourism firms by using HLM. Findings support the hypotheses partially, indicating that top-level supportive leadership positively influences on frontline employee service quality; supportive leadership flows from top-level leaders to frontline employees' service quality through middle-level leaders, which adds empirical evidence to the main-effect and trickle-down models of supportive leadership.

Inconsistent with our hypothesis, supportive leadership does not flow from top-level leaders to employees' service quality through group cohesion. Based on social exchange theory, the study suggests that employees repay group cohesion with quality service behaviors and performance. However, one factor was not assessed. Unlike repaying supportive behaviors from leaders by helping them improve service quality and achieve job goals, employees who receive support from coworkers repay coworkers directly (Tsai, Chen, & Liu, 2007) rather than transferring favors to customers (Liaw, Chi, & Chuang, 2010). Liaw

Table 3
HLM results: Moderating effects.

Level and Variable	Service Quality						
	M 1	M 2	M 3	M 4	M 5	M 6	M 7
Intercept	5.55**	5.53**	5.55**	5.49**	5.54**	5.57**	5.54**
Level 1							
Gender	0.24**	0.24**	0.24**	0.24**	0.24**	0.24**	0.25**
Age	0.06*	0.05	0.05	0.05	0.05*	0.05	0.05*
Educational Background	0.07	0.08*	0.08*	0.08*	0.07	0.07	0.07
Salary	0.24**	0.24**	0.23**	0.23**	0.24**	0.23**	0.23**
Level 2							
MSL		0.33**	0.26**	0.33**			
GC					0.14	0.07	0.10
Level 3							
RRO	−0.01	−0.03	−0.04	−0.05	−0.01	−0.03	−0.03
IND	0.06	0.04	0.03	0.02	0.02	0.01	0.01
OWN	−0.03	−0.04	−0.01	−0.04	−0.02	0.02	0.00
TSL			0.19	0.09		0.30*	0.27
Cross-level							
TSL × MSL				0.25+			
TSL × GC							0.19*
Model fit							
Deviance	4368.30	4352.18	4349.98	4346.29	4363.16 (14)	4357.07	4354.35
ΔD (Δdf)		16.12 (3)**	2.2 (1)	3.69 (1) +	5.14 (3)	6.09 (1)*	2.72 (1)+

Note: a. $^+ p < 0.1$; $^* p < 0.05$; $^{**} p < 0.01$.
b. The meaning of the abbreviations in this table is the same as Table 1.
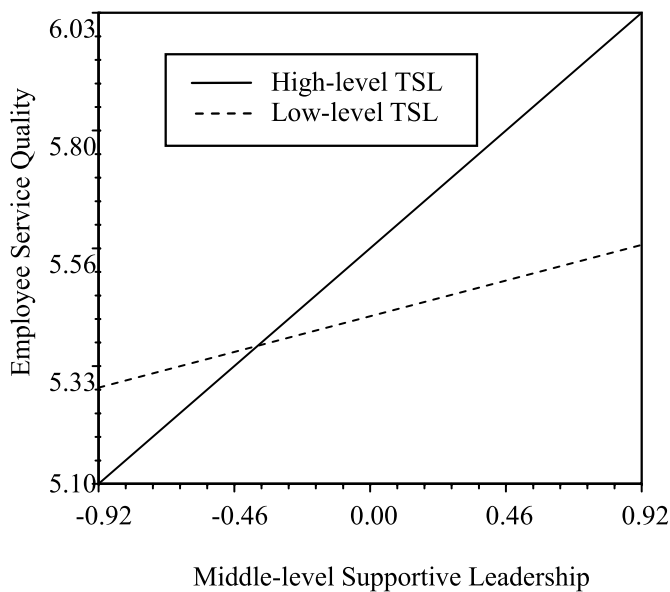c. For level 1 measures, N = 2009; for level 2 measures, N = 112; For level 3 measures, N = 35.

Fig. 2. Interaction effect of top-level supportive leadership and middle-level supportive leadership on employee service quality.

Fig. 3. Interaction effect of top-level supportive leadership and group cohesion on employee service quality.

et al. (2010) argue that coworker support echoes among coworkers and consolidates interpersonal ties between coworkers, rather than between employees and customers, and thus coworker support cannot affect customer-oriented behaviors. Their empirical evidence shows that coworker support neither affects customer-oriented behaviors nor mediates transformational leadership–customer-oriented behaviors link (Liaw et al., 2010), which is similar to the results in this study; group cohesion neither influences employee service quality nor mediates top-level supportive leadership–employee service quality link. However, a positive group cohesion–employee service quality link emerged during the following moderation analysis, suggesting that the influence of group cohesion on service quality depends on boundary conditions.

Another contribution is testing cross-level moderation by top-level supportive leadership on the middle-level supportive leadership–service quality relationship, since little research focuses on
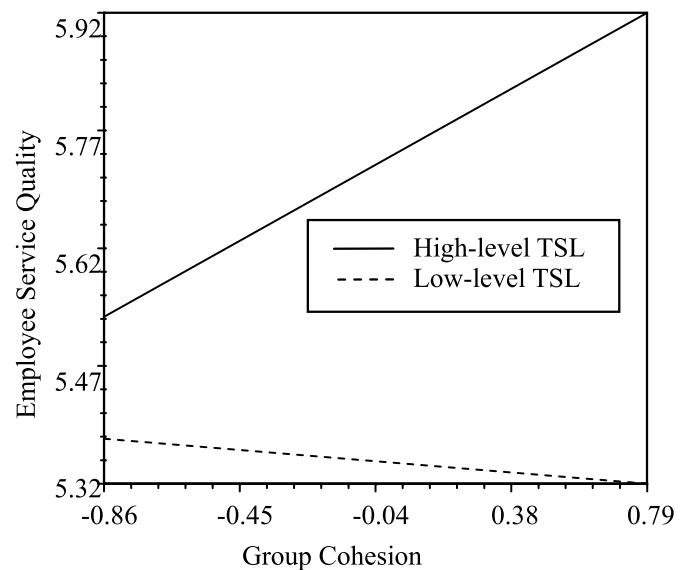
leadership's influence at two organizational levels when assessing interactive effects on followers (Song et al., 2014). Results support our hypothesis, suggesting that top-level supportive leadership enables middle-level supportive leadership more effectively when directing employees to achieve high-quality service. Moderation by top-level supportive leadership on the group cohesion–service quality relationship was also tested in this study, with results suggesting that top-level supportive leadership triggers the positive group cohesion–employee service quality relationship. One explanation is that although group cohesion is less likely to improve employees' service quality since employees repay group members directly rather than customers, top-level supportive leadership signals employees that the organization values and supports service work, thus increasing employees' willingness to perform quality service for customers. Group cohesion alone is insufficient to motivate employee service quality, but top-level supportive

leadership provides employees with useful and stable resources needed to improve service quality. Complemented with top-level supportive leadership, employees' willingness and ability to engage in customer-oriented service increase, and thus the positive effect of group cohesion on service quality is triggered. This study extends the trickle-down model of leadership by considering moderation of top-level supportive leadership.

5.2. Managerial implication

This study suggests practical implications for hospitality and tourism firms, especially regarding the importance of top-level supportive leadership in nurturing productive employees. It's necessary for top-level leaders to be supportive in hospitality and tourism firms. Leading by example is the best method to trigger supportive leadership. This study informs top-level leaders about the importance of modeling their behaviors to middle-level leaders who look up to them. When top-level leaders help employees and regard reciprocity as an organization-wide principle, other leaders and employees follow. To guarantee that employees provide customers with high-quality service, top-level leaders must create a supportive, harmonious environment by leading by example, defining formal policies and practices on supportive issues, and making it effortless for managers and frontline employees in the entire organization to be supportive.

Since middle-level supportive leadership mediates top-level supportive leadership and employee service quality, it is necessary for hospitality and tourism firms to cultivate supportive middle-level leaders, not only through top-level supportive leadership but organizational support (Shanock & Eisenberger, 2006). Training for supportive leadership skills (Wayne, Liden, Kraimer, & Graf, 1999), treating middle-level leaders fairly, and creating interactive channels to strengthen two-way communication between middle-level leaders and employees (Burke, Borucki, & Hurley, 1992) represent effective support in hospitality and tourism organizations. Leader training programs should include the importance, skills, and characteristics of supportive leadership, and the ways to execute supportive leadership across contexts, all of which can ensure that middle-level leaders are willing and able to support subordinates. Organizations should treat supervisors fairly so that supervisors will reciprocate by treating employees more favorably and engaging in greater extra-role behaviors, including showing respect, helping with difficult tasks, and helping with skill development (Tepper & Taylor, 2003). Organizations should invest in diverse communication channels to help middle-level leaders understand their employees' needs and offer appropriate support to them.

Although the positive group cohesion–employee service quality relationship occurs only when top-level supportive leadership is high, the role of group cohesion cannot be ignored. Group cohesion is important to hospitality and tourism employees because the industry commonly uses a teamwork system that emphasizes task and social interactions among team members. Since vertical leader–employee exchanges and lateral coworker–employee exchanges are not interchangeable (Chiaburu & Harrison, 2008), both supportive leadership and group cohesion are necessary for employees in the social environment. Hospitality and tourism firms that focus on coordination among employees should motivate group cohesion by cultivating supportive leaders (Shin et al., 2016), creating a supportive work environment, and establishing interpersonal attraction (Lott & Lott, 1965).

5.3. Limitations and future research

This study explores and tests the role of top-level supportive leadership on both individual and group members in hospitality and tourism firms, examining the trickle-down model of top-level supportive leadership through not only middle-level supportive leadership, but group cohesion, and also moderation of top-level supportive leadership on both middle-level supportive leadership–service quality and group

cohesion–service quality relationships, which extend and enrich the trickle-down model of leadership. This study uses a cross-sectional sample, prohibiting causal conclusions. Longitudinal designs should be used to intensify conclusions of causality. To increase the generalizability of results as well as guarantee an appropriate organizational-level sample size in cross-level study, the study collected data from three types of firms (i.e., hotel, restaurant and travel agency), failing to control the effect of other variables (e.g., firm and department sizes, level of services, job responsibility) since standards to determine these variables across the three types of tourism firms were disparate and un-uniform. In addition, even though supervisor evaluated employee service quality, the other variables (i.e., top-level supportive leadership, middle-level supportive leadership, and group cohesion) were evaluated by employees, thus the study couldn't completely exclude the effect of common-method bias.

Although this study considers top- and middle-level supportive leadership simultaneously, low-level supportive leadership is not assessed. Since the influences of levels of leadership are different (Ling et al., 2016), and low-level leaders interact and communicate with employees more often and intimately than higher leaders do, research should integrate low-level supportive leadership into a multilevel model to identify its role in employee job outcomes. Although this study tests mediation through middle-level supportive leadership and group cohesion, connecting top-level supportive leadership and employee service quality, other mediators such as organizational or team support, and collective positive attitudes and behaviors, should be examined. This study does not consider antecedents of top-level supportive leadership. Just as employees and middle-level leaders need support, so do top-level leaders. Top-level leaders may need both the top-down support from the board and bottom-up support from their followers. These supports motivate top-level leaders to serve and support their employees better. Future research should explore how top-down and bottom-up support from different sources influences top-level supportive leadership, which in turn affect followers' service behaviors and performance. The study does not differentiate the effects of two dimensions of supportive leadership. It is plausible that these two subtypes of supportive leadership play different functional roles in job outcomes, and therefore future research should compare how and why these two types of support differs.

Acknowledgments

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jhtm.2020.11.013.

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Meizhen Lin is an associate professor at the College of Tourism, Huaqiao University. She received her Phd in tourism management from Zhongshan (Sun Yat-Sen) University, China, in 2009. Her research interests include empowerment theory, job stress management, leadership, knowledge hiding and service quality in tourism industry.

Qian Ling is a professor at the School of Tourism Management at South China Normal University. She received her Phd in business management from Zhongshan (Sun Yat-Sen) University, China, in 2009. Her research interests include leadership, organizational climate and service quality in tourism and service industry.