

The following publication Wang, X., Guchait, P. and Paşamehmetoğlu, A. (2020), "Tolerating errors in hospitality organizations: relationships with learning behavior, error reporting and service recovery performance", *International Journal of Contemporary Hospitality Management*, Vol. 32 No. 8, pp. 2635-2655 is published by Emerald and is available at <https://dx.doi.org/10.1108/IJCHM-01-2020-0001>

## **Tolerating Errors in Hospitality Organizations: Relationships with Learning Behavior, Error Reporting, and Service Recovery Performance**

### 1. Xingyu Wang (corresponding author)

Assistant Professor

School of Hotel and Tourism Management, The Hong Kong Polytechnic University, Hong Kong

Phone: 852-3400-2160

Email: [maxime.wang@polyu.edu.hk](mailto:maxime.wang@polyu.edu.hk)

### 2. Priyanko Guchait

Associate Professor

Conrad N. Hilton College of Hotel and Restaurant Management, University of Houston,

Houston, TX, USA

Phone: 713-743-2433

Email: [pguchait@uh.edu](mailto:pguchait@uh.edu)

### 3. Aysin Paşamehmetoğlu

Associate Professor

School of Applied Sciences, Hotel Management Program, Özyeğin University, Istanbul, Turkey

Email: [aysin.pmoglu@ozyegin.edu.tr](mailto:aysin.pmoglu@ozyegin.edu.tr)

## **Abstract**

Purpose – Hospitality work setting is error-prone, rendering error handling critical for effective organizational operation and quality of service delivery. An organization's attitude toward errors can be traced back to one fundamental question: Should errors be tolerated/accepted or not? This study aims to examine the relationships between error tolerance and hospitality employees' three critical work behaviors: learning behavior, error reporting, and service recovery performance.

Psychological safety and self-efficacy are hypothesized to be the underlying attitudinal mechanisms that link error tolerance with these behavioral outcomes.

Design/methodology/approach – This study relied on a survey methodology, collecting data from 304 frontline restaurant employees in Turkey and their direct supervisors. SPSS 25.0 and Amos 25.0 were used for analysis.

Findings – The results revealed that error tolerance had direct positive relationships with employees' psychological safety and self-efficacy, both of which had positive impacts on learning behavior and error reporting. In addition, learning behavior positively influenced employees' service recovery performance, as rated by the employees' supervisors.

Originality/value –This study (1) identifies error tolerance as an organizational distal factor that influences employees' learning behavior, error reporting, and service recovery performance; and (2) identifies self-efficacy and psychological safety as mediators of the relationship between error tolerance and behavioral outcomes. The findings help clarify the longstanding debate over the relationship between an organization's attitude toward errors and its employees' learning behavior. The findings also shed light on the advantages of tolerating error occurrence for organizations, which is especially important since most hospitality organizations pursue perfection with aversive attitudes toward errors.

## **Research paper**

### **Introduction**

Hospitality employees and organizations continuously face error and failure situations that may range from small slip-ups (e.g., an incorrect guest room allocation) to severe mistakes (e.g., a food safety error that threatens the lives of many people), revealing the error-prone nature of the hospitality industry (Wang et al., 2020). Given the widely recognized negative consequences of error occurrence, individuals and organizations tend to hold strong, aversive attitudes towards errors and spare no effort in their drive to eliminate error and failure situations.

However, errors are not always negative. For instance, people can learn from errors (Dahlin et al., 2018). As one aspect of learning from experience, learning after error occurrence centers on (1) understanding what is not working in task procedures (e.g., errors) and why, and (2) instituting changes to prevent future loss (Reason, 2000; Zhao, 2011).

This link between error/failure and learning is not a widely accepted phenomenon. In spite of the consensus that error and learning are closely associated, theoretical controversies regarding why and how errors contribute to learning in organizations persist. One viewpoint holds that individuals learn better if they know that errors are not accepted in the workplace, as errors can trigger cognitive and emotional resources that motivate individuals to learn. Another viewpoint suggests that in order for learning to take place in the aftermath of an error, barriers to learning must be removed (Cannon and Edmondson, 2001). First, employees need to be comfortable taking risks and disclosing errors. Second, employees must believe in their own capacity to learn. The first point corresponds to the literature on psychological safety, which values taking an active approach toward errors: open and non-judgmental discussions about errors, a focus on problem-solving, and a willingness to share and collaborate (Edmondson and Lei, 2014; Senge, 2014). The second point is associated with social cognitive theory (SCT), which holds that self-efficacy is a consistent and key predictor of individuals' behavioral change and maintenance, including learning and learning transfer (Bandura, 2012; 2014).

Lack of error tolerance is prevalent and instantiated in various ways in organizations. Employees are at times motivated to promote their own competencies by disclosing others' errors and failures and casting blame. Compared to the arduous efforts one needs to make to surpass their coworkers, assigning blame may feel like a shortcut to feelings of winning and competence (Alicke, 2000). In this sense, there is a tendency for employees and managers alike to be

intolerant of error occurrence. In addition, due to the preconceived negative perception of errors (e.g., Martin and Marsh, 2003), a person may use intolerance of errors as a way to protect self-esteem and self-image. Over time, these individual psychological and behavioral tendencies tend to bring into being a climate of zero-intolerance of errors. Integrating the theoretical perspectives of psychological safety and SCT, the current study recommends that hospitality organizations should tolerate and accept errors to promote employees' learning behavior, as error tolerance can enhance both employees' psychological safety and self-efficacy.

Like learning behavior, employees' error reporting behavior and service recovery performance are behavioral outcomes on which organizational error tolerance can exert positive impacts. Both of these behavioral outcomes are closely associated with failure or error handling. Practical evidence has confirmed the importance of error reporting and the severe consequences of covering up errors. Error reporting describes an employee's tendency to communicate error information to managers or organizations (Van Dyck et al., 2013). Timely error reporting can result in prompt corrective actions that can prevent potential negative consequences and raise awareness of learning opportunities (e.g., Liang et al., 2012). In spite of their importance, these factors remain largely unknown. This study posits that error tolerance is a contextual factor that positively influences employees' error reporting behavior via the mediation effects of psychological safety and self-efficacy. An employee's perception of psychological safety usually influences their evaluative process of how others are likely to react to the disclosure of errors (Frazier et al., 2017). Moreover, self-efficacy usually alleviates an employee's reputational concerns and negative emotions related to error reporting (Zhao and Olivera, 2006). The third work behavior that this study considers is service recovery performance. The nature of service production makes occasional service failures inevitable. These failures can lead to various

negative outcomes, such as negative word of mouth, as well as customer disappointment, dissatisfaction, and disloyalty (Cho et al., 2014). Therefore, the competence of frontline hospitality employees in addressing service failure (service recovery performance) in order to regain customer satisfaction is critical for organizational success. Given that employees need to continuously develop new knowledge and practice different service recovery approaches based on unique service failure situations, this study posits that service recovery performance is determined by how well employees can learn.

The current study aims to answer the following research question: How can organizational error tolerance influence employees' learning behavior and error-related work behaviors? The objectives of this study are threefold: (1) to investigate the relationship between employees' perceptions of organizational error tolerance and learning behavior via the underlying mechanisms of psychological safety and self-efficacy; (2) to examine how employees' learning behavior impacted service recovery performance; and (3) to test whether psychological safety and self-efficacy mediated the relationship between error tolerance and error reporting. The study's findings regarding these objectives contribute to the literature on error management, learning, psychological safety, and organizational voice. First, psychological safety and self-efficacy are identified as attitudinal outcomes of organizational error tolerance, thereby extending error tolerance's nomological network. Second, this paper helps elucidate how organizations should handle errors to promote employees' learning behavior, thereby clarifying some of the inconsistent findings in the literature on learning in the workplace. Third, this study explores how employees' error reporting and service recovery performance were influenced by the organizational and individual psychological factors.

## Literature Review and Hypothesis Development

### *Error tolerance*

Making errors is a common life experience that helps an individual grow and develop skills over their lifespan (Frese and Keith, 2015). While errors are inevitable, individuals have been socialized to dislike errors and link errors with loss, carelessness, threats to self-esteem, and lack of diligence (Jung and Yoon, 2017; Van Dyck et al., 2013). This aversive attitude toward errors is even more prevalent in hospitality organizations where the golden rule is often “aiming for perfection” (e.g., Hagen, 2013; Leape et al., 1998; Guchait et al., 2018). In the hospitality industry, customers tend to have high expectations, and employee performance appraisals strongly emphasize perfection. For these reasons, error occurrence in hospitality organizations is often associated with blaming and negative emotions, rendering error tolerance low (Zhao, 2011; Guchait et al., 2016b; Wei et al., 2017). Errors are considered evidence of personal failure and are often followed by negative feedback (Oxtoby et al., 2015; Maurer et al., 2017). Errors that occur in the hospitality service delivery process may have even broader and more complex impacts than errors occurring in industries producing tangible goods. First, a hospitality client may form an overall negative evaluation of their entire service experience because of a single service error, referred to as the “halo” effect. Second, because the hospitality service product requires a series of sequential steps to be completed a single error in the service production chain could exert a domino effect, a single error could exert a domino effect and cause errors in following steps (Namkung and Jang, 2010). Wang et al. (2019) suggested that miscommunication among individuals and service co-production increases the likelihood of error occurrence in hospitality organizations. As these studies make clear, effective error management is essential for the success of hospitality organizations.

Researchers have proposed a new managerial approach, error management, for the handling of errors. This approach emphasizes the steps to take after error occurrence and proposes various error handling behaviors (Edmondson and Verdin, 2018; Guchait et al., 2016c). The core of this new managerial approach is accepting and tolerating error occurrence (Frese and Keith, 2015; Hagen, 2013). Organizations with high levels of error tolerance do not negatively judge errors; rather, they maintain a tolerant attitude with the hope that employees use errors as opportunities to learn and develop (Chillarege et al., 2003; Dimitrova et al., 2017; Guchait et al., 2016c; Pasamehmetoglu et al., 2017). It is important to note that organizational error tolerance does not imply the encouragement of error occurrence. On the contrary, the purpose of error tolerance is to make the most of every error situation in terms of employee performance. If employees feel that errors are accepted, they learn and develop competence and fewer errors happen in vain (Weinzimmer and A. Esken, 2017).

### *Psychological safety*

The hospitality work setting requires substantial collaboration and teamwork to effectively deliver the service product (Hu et al., 2009), rendering it necessary that each hospitality employees adopt an interaction-oriented attitude. Psychological safety describes one's willingness to share information, take risks, express themselves, and put energy into tasks (Edmondson, 1999, 2004; Wanless, 2016). This construct reveals how employees' information expression and risk-taking tendencies are shaped by interpersonal contexts (e.g., Liang et al., 2012). Previous research has shown that individuals tend to attribute a failure or an error to themselves if they perceive a high probability of improvement next time (Edmondson and Verdin, 2018).

Antecedents of psychological safety can be categorized as either individual personality traits or organizational contextual factors (Newman et al., 2017). For instance, positive leader relations, work characteristics, and a supportive organizational climate positively influence psychological safety (e.g., Agarwal and Farndale, 2017; Guchait et al., 2019; Basit, 2017). Gong et al. (2012) found that information exchange initiated by proactive job attitudes facilitates trusting relationships, which in turn shape psychological safety. This study proposes that error tolerance is a contextual predictor of psychological safety. First, an organization's tolerance of errors makes the organization trustworthy in the eyes of its employees. Error occurrence can be considered an involuntary way for an employee to demonstrate vulnerability to their organization in that the person's reputation and performance appraisal may be at stake after the error occurrence (Mayer et al., 1995; Delizonna, 2017). When an organization tolerates errors, its employees recognize that their vulnerability is protected and cared for by the organization consequently trust is built (Möllering and Sydow, 2019). Trust is an important component of psychological safety (Basit, 2017). Second, error tolerance constitutes one aspect of organizational support, which is the willingness to understand and forgive honest errors (Kurtessis et al., 2017). Previous research has identified organizational support in various forms as a contributor to psychological safety (e.g., Frazier et al., 2017).

**Hypothesis 1:** Error tolerance is positively associated with employees' perceived psychological safety.

### *Self-efficacy*

According to Bandura's SCT, one's goal achievement is largely a function of this person's own judgement of their ability to perform; namely, their self-efficacy. These goals refer specifically to individual behavioral change such as learning (Bandura, 2014; Panadero et al.,



2017). Self-efficacy can be conceptualized as a combination of magnitude, strength, and generality (Sogh and Zarei, 2016). Self-efficacy manages individual cognition, motivation, and behavioral patterns (Simosi, 2012; Liu et al., 2017). In addition, self-efficacy is an individual barometer that responds to contextual factors. Unlike dispositional traits, one's self-efficacy is a dynamic state contingent on personal experience (Luthans and Peterson, 2002; Maddux and Kleiman, 2018). This study argues that organizational error tolerance can boost one's self-efficacy by contributing to both mastery experience and psychological arousal, two critical antecedents of self-efficacy (e.g., Consiglio et al., 2016; Ram and Laxmi, 2017). First, successful experience alone is unlikely to shape individuals' persistent confidence in the competence to perform a task. By comparison, seeing or experiencing errors may establish one's self-efficacy because in order to correct errors, one has to make continuous endeavors in order to succeed. Second, negative emotions and stress are found to impair one's belief in self-efficacy (Bandura, 2001; 2013). Zhang et al. (2018) revealed a strong negative impact of hindrance stress on employees' self-efficacy. Organizations' error tolerance helps mitigate employees' stress and negative emotions (e.g., guilt, anxiety, sadness) in the face of error occurrence. In doing so, it creates opportunities for employees to develop self-efficacy by means of confronting and solving errors.

**Hypothesis 2:** Error tolerance is positively related to employees' self-efficacy.

### *Learning Behavior*

Learning behavior describes a set of activities related to a controlled reduplicative process of reflection, action, assessment, and modification that requires cognitive and motivational inputs (e.g., Edmondson, 1999; Deverell and Olsson, 2009; Furlan et al., 2019). Both motivation and cognitive resources need to be present for learning behavior to occur

(Rybowiak et al., 1999; Kauppila, 2018). Learning often involves seeking feedback on a task performance, asking for help from a colleague or supervisor, and discussing challenges and possible solutions (e.g., Reagans et al., 2005; van den Brand et al., 2018). All these behaviors are more or less risk-taking. For instance, a person may risk their self-image and reputation when asking for help from a supervisor because the supervisor may negatively judge the competence of the person. This study proposes that one's psychological safety can boost learning behavior through the activation of both motivational and cognitive resources. First, psychological safety can influence individual emotional states in that it amplifies the feeling of vigor, which promotes creative thinking and motivates people to seek new knowledge and solutions (Kark and Carmeli, 2009; Nelson, 2016). In particular, psychological safety removes psychological barriers to change and creates an environment where information is shared promptly and trial and error is encouraged (Frazier et al., 2017). Second, employees with high levels of psychological safety are more engaged in their tasks than other employees (Kahn, 1990; Wanless, 2016). Individuals with low psychological safety are likely to protect themselves by avoiding engaging in events that they perceive as potentially harmful. High psychological safety tends to provide employees with relief from anxiety and defensiveness, allowing them to focus on solving problems, seeking feedback, and asking for help (Walters and Diab, 2016). In addition, Siemsen et al. (2009) found a positive relationship between psychological safety and information-sharing that facilitates the process of seeking feedback. Guchait et al. (2016c) revealed that learning behavior has a mediation effect on the relationship between psychological safety and helping behaviors.

**Hypothesis 3:** Psychological safety is positively related to learning behavior.

A gap between an expected outcome and actual performance leaves room for improvement, which often triggers the learning behavior (Kauppila, 2018; Chan et al., 2003).

Learning is a conscious cognitive process that incorporates awareness, reflection, information-processing, evaluation, invention, and implementation (Ye et al., 2018; Lipshitz et al., 2002). One key driver of employees' learning behavior is self-efficacy. Rooted in SCT, self-efficacy enables one to persistently allocate cognitive resources to knowledge acquisition via self-regulation (Bandura, 2010). A strong sense of self-efficacy enables a learner to (1) be motivated to learn, (2) positively perceive the learning conditions, and (3) be confident enough to master the learning content (Keith and Frese, 2008; Bandura, 2012; Chen, 2017). Previous studies have revealed a positive correlation between self-efficacy and exam grades among students, with self-efficacy boosting students' cognitive engagement (Linnenbrink and Pintrich, 2003; Grigg et al., 2018). Indeed, research has generally shown that self-efficacy evokes a sense of agency, motivating employees to set more challenging goals, as well as monitor and regulate their own behaviors to align with the achievement of these goals. Therefore, as a motivation-focused and expectancy-oriented construct, self-efficacy is expected to contribute to employees' learning behavior.

**Hypothesis 4:** Self-efficacy is positively related to learning behavior.

#### *Error reporting*

As one challenging organizational citizenship behavior, error reporting may involve negative psychological (embarrassment, anxiety, stress) and behavioral outcomes (extra work, damaged reputation, and financial loss) contingent on work contexts (Van Dyne and LePine, 1998; Farag et al., 2017). As a result, it is common for employees hide errors (Edmondson, 1999; Tucker and Edmondson, 2003; Guchait et al., 2016a). However, it is critical for employees to report errors (Wakefield et al., 2001; Soydemir et al., 2017). Not reporting errors can cause precious opportunities to correct errors slip by, ultimately leading to severely detrimental

outcomes. For instance, there may be a widespread foodborne illness outbreak in a hospitality organization because of an error that goes unreported (Guchait et al., 2016a). This study proposes that error reporting is a prohibitive voice behavior that needs extra effort to be initiated (Liang et al., 2012).

Zhao and Olivera (2006) identified two factors that influence error reporting: cost-benefit evaluations and emotional experiences associated with errors. On the cost side of cost-benefit evaluations, error reporting may bring substantial loss, such as the loss of employment (Sexton et al., 2000), damage to one's personal reputation (Baker and Norton, 2001; Kelly, 2018), loss of time (Tucker et al., 2002; Unal and Seren, 2016), and economic costs (Barach and Small, 2000). On the other hand, error reporting may promote learning and enhance a person's self-value as it is a reflection of honesty, altruism, and integrity (Edmondson and Lei, 2014; Frese and Keith, 2015). With regard to emotional experiences, emotions elicited by errors influence the cognitive decision-making processes involved in error reporting behavior. When errors are associated with negative emotions such as shame, anger, fear, and anxiety (Rausch et al., 2017), individuals tend to avoid reporting them. Negative emotions intensify individuals' cognitive attention to potential threats and risk prevention, which subsequently leads to the behavioral tendency of failing to report errors (Loewenstein et al., 2001; Soydemir et al., 2017). Individuals without negative emotions tend to think more positively and consider error reporting to be akin to a learning and correction opportunity rather than a risky behavior. From this perspective, psychological safety can be seen as an individual's certainty that others will not negatively judge their decision to take a risk and speak out (Detert and Burris, 2007). Guchait et al. (2016a) revealed a positive impact of leader integrity for food safety on employees' error reporting. Therefore, this study posits that individuals with high levels of psychological safety tend to report errors because (1) the benefits

of error reporting outweigh the costs and (2) psychological safety mitigates the negative emotions related to error reporting (Edmondson, 2004; Guchait et al., 2016).

**Hypothesis 5:** Psychological safety is positively related to employees' error reporting.

This study identifies self-efficacy as another driver of error reporting. When employees perceive themselves as having higher levels of self-efficacy, they are more likely to report errors because they believe in their capacity to control and manage the consequences of that error reporting, such as the timely correction of errors, thereby avoiding the negative consequences of the errors themselves. Individuals with self-confidence tend to disclose errors than others are because they are less concerned about the negative impact of errors on their self-image, experience fewer negative feelings resulting from errors, and focus more on learning from errors (Zhao and Olivera, 2006; Morrison and Phelps, 1999). Emby et al. (2018) found a mediation effect of error-related self-efficacy on the relationship between audit senior modeling fallibility and audit juniors' error communication. With this in mind, the following hypotheses are established:

**Hypothesis 6:** Perceived self-efficacy is positively associated with employees' error reporting.

#### *Service recovery performance*

Service recovery describes the effort an organization makes to regain customer satisfaction due to service failure situations (Vaerenbergh and Orsingher, 2016). Ashill et al. (2005) found that service recovery involves employees learning either a skill or technique to perform confidently. Learning behavior can contribute to employees' improved service recovery performance because it involves sharing information and seeking feedback by recalling and analyzing previous experiences (Kale et al., 2000; Poulston, 2008). Given the fact that hospitality employees serve different customers in each interaction they have, service failure situations tend

to vary. If employees share information about various service failure situations and learn how to handle them based on others' experiences, they tend to perform better. As a result, employees are more competent in executing proper service recovery strategies to regain customers' satisfaction following service failures. Lin (2010) indicated that a workplace with an open-minded and learning-centered orientation can facilitate employees' service recovery performance. Scott (2001) showed that learning to address various service situations, including service failure, is critical for health care employees. Research has also recognized the unique role learning can play in improving employees' work-related performance (e.g., Song et al., 2018).

**Hypothesis 7:** Learning behavior is positively associated with service recovery performance.

## **Methodology**

### *Participants and Procedure*

Using the convenience sampling method, the current study collected data from individuals who work in restaurants in Turkey. The restaurants are independently owned and managed and are similar in terms of the type of food and service that they offered. The restaurants serve world cuisine, and provide table service to customers. In all, 308 questionnaires were distributed and 304 surveys were returned. A manager survey was distributed to the restaurant managers who evaluated their employees' service recovery performance. The researcher asked for a list of employees' names from each manager and assigned codes to each employee that were written on every questionnaire. The codes allowed the researcher to match each employee survey to a manager survey. The survey was completed during regular working hours.

Specifically, employees answered questions regarding error tolerance, psychological safety, self-efficacy, learning behavior, and error reporting. Employees' supervisors evaluated the service recovery performance of the employees. Seventy-one percent of the participants were

male. Fifty-two percent of the participants were between 21 to 30 years old. Eighty-nine percent of the participants had worked in the restaurant industry for more than one year. Seventy-seven percent had high school or higher degrees.

### *Measures*

Participants answered survey questions based on a 7-point Likert scale for all constructs. The internal reliabilities (Cronbach's alphas estimates) ranged from .75 to .91. Error tolerance was measured by five items (Weinzimmer and A.Esken, 2017). One sample item is "Managers are generally accepting of errors". Psychological safety was measured with a five-item scale used by Liang et al. (2012). One sample item is "Nobody in the organization will pick on me even if I have different opinions". The eight-item measure by Chen et al. (2001) was adopted to assess self-efficacy. One sample item is "I will be able to successfully overcome many challenges". Learning behavior was assessed by five items adopted from Chan et al. (2003). One sample item is "We regularly take time to figure out ways to improve our work processes". A measure of six items developed by Lin (2010) was used to assess service recovery performance. One sample item is "This employee is able to properly handle dissatisfied customers". A one-item measure adopted from Guchait et al. (2016) was used to measure error reporting. The item states "When I make an error, I \_\_\_\_\_ report it to an appropriate responsible person and/or record it through the record keeping protocol."

## **Results**

### *Preliminary Analysis*

The data were subject to a confirmatory factor analysis to confirm the validity and reliability of the measures. Two items from the psychological safety and one item from learning behavior were dropped due to low factor loadings. The model fit indices demonstrated a good

model fit ( $\chi^2 = 531.80$ ,  $df = 278$ ,  $p < 0.05$ ; CFI = 0.93; IFI = 0.94; RMSEA = 0.055;  $\chi^2/df = 1.91$ ). Convergent validity was tested by both factor loadings as well as the average variance extracted (AVE). First, AVE scores for three measures ranged from .54 to .65, indicating convergent validity. Second, factor loadings for all items were greater than 0.5 ( $p < 0.01$ ). The AVE scores for error tolerance and learning behavior were .43 and .41, respectively. Fornell and Larcker (1981) indicated that the convergent validity is still adequate if 1) the AVE is less than 0.5 but greater than 0.4; and 2) the composite reliability of that measure is higher than 0.6. The composite construct reliabilities (CCR) for error tolerance and learning behavior were respectively .79 and .74, thus indicating the convergent validity. The discriminant validity was examined by comparing the square root of AVE values for any two constructs with the correlation estimate between them. The square root of AVE value was greater than the correlation estimates in all cases, demonstrating discriminant validity. In addition, the CCR values ranged from 0.74 to 0.92, which were greater than 0.70, indicating the construct reliability (Fornell and Larcker, 1981; Hair et al., 2009). Overall the measures possessed adequate reliability and validity. Table 1 indicates means, standard deviations, intercorrelations of the variables, and Table 2 presented the factor loadings, values of CCR, AVE, and Cronbach's alpha.

### *Hypotheses testing*

Following the validation of the measurement model, the structural equation modeling (SEM) was used to test the hypothesized relationships. On the whole, the structural model had a good fit with the data ( $\chi^2 = 696.20$ ,  $df = 307$ ,  $p < 0.05$ ; CFI = 0.90; IFI = 0.90; RMSEA = 0.06;  $\chi^2/df = 2.27$ ). As Figure 1 indicated, error tolerance positively influenced employees' psychological safety ( $\beta = 0.21$ ,  $p < 0.05$ ), thereby supporting H1. Hypothesis 2 posits a positive impact of error tolerance on self-efficacy. Supporting H2, error tolerance positively influenced



self-efficacy ( $\beta = 0.24, p < 0.05$ ). Psychological safety was positively related to learning behavior ( $\beta = 0.50, p < 0.05$ ), supporting H3. In addition, self-efficacy positively impacted learning behavior ( $\beta = 0.25, p < 0.05$ ), thereby H4 was supported. Supporting H5, psychological safety positively influenced error reporting ( $\beta = 0.32, p < 0.05$ ). Self-efficacy also positively impacted employees' error reporting ( $\beta = 0.34, p < 0.05$ ), supporting H6. At last, learning behavior was positively associated with service recovery performance ( $\beta = 0.14, p = 0.05$ ), supporting H7.

The bootstrapping was used to examine the indirect effect of error tolerance on service recovery performance, learning behavior and error reporting through psychological safety and self-efficacy (see Table 3). The results found that psychological safety and self-efficacy significantly mediated the relationship between error tolerance and 1) learning behavior (Standardized estimate = .16, CI<sub>.95</sub> [.06, .29],  $p < .05$ ); 2) service recovery performance (Standardized estimate = .02, CI<sub>.95</sub> [.001, .06],  $p < .05$ ); and 3) error reporting (Standardized estimate = .15, CI<sub>.95</sub> [.06, .24],  $p < .05$ ).

## **Discussion and conclusions**

### *Conclusions*

The handling of errors, especially in error-prone hospitality organizations, has long been a debate in managerial research and practice. Various empirical findings have emerged regarding the relationship between different error handling approaches and employees' learning behavior and job performance. For example, Akay (2011) found that the more employees failed on job tasks, the more motivated managers were to set up an intensive learning program. Tjosvold et al. (2004) found little relationship between the blaming that stems from an intolerance for errors and learning. Drawing on error management literature, this study examined the relationship between

error tolerance and employees' learning behavior, service recovery performance, and error reporting behavior, as well as underlying attitudinal mechanisms. The findings reveal that organizations would benefit from accepting and tolerating error. In particular, employees' perceptions of error tolerance were found to be directly and positively associated with psychological safety and self-efficacy, both of which were in turn positively related to learning behavior and error reporting. Moreover, learning behavior was positively associated with service recovery performance. The result is consistent with previous research findings indicating that learning is an important contributor to better work performance (Song et al., 2018). Unlike the findings of some previous research (e.g., Zhao, 2011; Akay, 2011), this study indicates that in order for employees to learn more effectively it is critical for organizations to establish error-tolerant work environments. However, the study also corroborates some previous research. In particular, the study reveals that psychological safety and self-efficacy are underlying mechanisms that help explain how error tolerance positively influences learning behavior, findings that are aligned with previous study indicating that learning contributed to better work performance (Song et al., 2018). Finally, this study explored the organizational factor of error reporting and its attitudinal antecedents. Error reporting is a key factor in determining effective risk handling. The findings, too, are consistent with those of previous studies: Self-efficacy and psychological safety are important attitudinal precursors of prohibitive voice behavior such as error reporting (Emby et al., 2018; Kim and Kim, 2019). Ultimately, this study suggests that establishing an error-tolerant work environment can yield benefits in areas such as job attitudes, learning, voice behavior, and job performance.

### *Theoretical implications*

This study extends the nomological network of error tolerance, thereby contributing to the larger body of error management literature. Error management is an organizational managerial practice that involves a change in both mindset and behaviors toward errors. Error tolerance is the core of error management because the change in mindset always precedes the change in behaviors (Frese and Keith, 2015). In spite of the attention that has been paid to error tolerance in error management literature, it remains largely unknown how employees' perceptions of error tolerance influence key job attitudes and behaviors. Previous research has emphasized the importance of understanding error management-related practices and their attitudinal and behavioral outcomes, such as error management culture and error management training (e.g., Guchait et al., 2016b; Jung and Yoon, 2016; Guchait et al., 2015; Wei et al., 2017; Yao et al., 2019; Wang et al., 2018). While these findings help to elucidate the concept of error management, error tolerance's influence employees' cognition, emotions, and behaviors remains underexplored. One exception is Wang et al (2020)' study which revealed a positive impact of error tolerance on individual's psychological well-being. In this regard, drawing on literature in error management, organizational support (Eisenberger et al., 1986), SCT (Bandura, 2013), and voice behavior (Van Dyne and LePine, 1998), the current study finds that error tolerance in organizations positively influences employees' perceptions of psychological safety and self-efficacy, which in turn leads employees to learn, report errors, and perform better during service recovery. In other words, tolerating errors at work not only allows employees to feel comfortable speaking up or taking risks, but it also boosts their self-confidence in their own competency at work.

The finding provides insights into the learning literature by clarifying the relationship between organizations' attitude toward errors and employees' learning behaviors. Previous studies have provided inconsistent and sometimes even contradictory findings. For instance, while some researchers have suggested that the intolerance of errors elicits negative emotions, whose effects subsequently motivate employees to learn (Zhao, 2011), others have suggested that it is the intensification of the cognitive process stemming from negative emotions that contributes to learning (Argyris, 2017). Cannon and Edmondson (2001, p.161) suggested that "...organizational learning from failure is likely to be impeded by powerful psychological and organizational barriers to engaging in behaviors through which this can occur". Previous research has shown that in order for learning to occur, one must (1) believe in their capacity to learn (e.g., SCT) and (2) work in an environment where information is shared without barriers. While SCT holds that errors are harmful for the establishment of self-efficacy, this study demonstrates that errors are the natural by-products of active learning that have a unique informative function. They accordingly should be included and tolerated to facilitate learning. Error tolerance has been found to boost both self-efficacy and psychological safety, the two key attitudinal mechanisms underlying employees' learning behavior. Psychological safety has been found to facilitate knowledge sharing (Edmondson, 1999), and self-efficacy is strongly associated with knowledge acquisition (Baudura, 2010). The findings of this study contribute to the learning literature by introducing the construct of error tolerance, which is a distal organizational antecedent of employees' learning behavior through self-efficacy and psychological safety. The results are consistent with those of previous papers. For example, Frese and Keith (2015) posited that it is necessary for organizations to take active approaches to errors if learning is to occur. The current study also captures the driving factor of self-efficacy, the core

of SCT. Although SCT holds that errors and failures impair self-efficacy, findings of this study are evidence that one's self-efficacy can in fact be improved by error situations if errors are tolerated.

The current study brings insights into research on voice behavior. As one type of prohibitive voice behavior (Liang et al., 2012), error reporting is a discretionary and risky behavior that requires psychological motivation to initiate. Although previous studies have suggested that self-efficacy might be an important attitudinal driver of error reporting behavior, very few studies have empirically tested this relationship (Zhao and Olivera, 2006). Kim and Kim (2019) revealed the influence of medication administration knowledge and nursing decision-making on perceived barriers to medication administration errors. The current study responded to this call by revealing a positive impact of employees' self-efficacy on error reporting. In addition to identifying individual psychological factors, the study revealed an organizational factor that can motivate employees to report errors: organizational error tolerance, which positively influenced employees' self-efficacy and psychological safety.

### *Practical implications*

Hospitality organizations need proactive employees who are confident in their own competence; who are willing to express different opinions, report errors, and engage in learning; and who know how to regain customer satisfaction after service failure. Large organizations such as FedEx, Disneyland, Ford, and Marriott have all developed different programs of learning, training, and orientation to reinforce performance effectiveness in the face of service failures (Tax and Brown, 1998). The current study found that creating a workplace where errors are tolerated is an effective way to cultivate hospitality employees' positive attitudes and behaviors. First, the hospitality work environment requires close collaboration and communication among

organizational members to deliver the service product (Hu et al., 2009). As such, it is important for employees to feel psychologically safe in order to speak out and take innovative actions to facilitate communication. Second, given the ubiquity of service failure and error occurrence in hospitality organizations, it is important for managers to (1) facilitate employees' learning behavior, which in turn, improves their ability to handle inevitable service failure; and (2) create an environment where employees do not hesitate to report their own errors. The faster an error is disclosed and handled, the less negative the consequences will be.

Managers tend to equate errors with the negative consequences of error occurrence, such as service failure, faulty products, and customer dissatisfaction. However, errors are separate from failures. It is important to establish a new mindset in which errors are simply indicators of areas for improvement and thus need to be disclosed, discussed, and analyzed to promote learning (e.g., Helmreich and Merritt, 2017). Managers should keep in mind two key reasons for supporting error tolerance. First, in order for employees to learn as much as possible, errors must be discovered and made known. If employees hide errors or even cover up errors for each other, it is impossible for them to learn from errors, which means that errors happen in vain. Second, numerous opportunities exist to correct errors before they actually cause negative consequences. The sooner an error is disclosed, the more likely it is that the error can be corrected before resulting in severe consequences. Error tolerance requires managers to take the lead and form and cultivate a mindset of error tolerance among their employees at work. Employees observe and follow their leaders' ways of thinking and behaving, especially when it comes to situations in which they feel uncertain. Therefore, managers should make good use of every error situation by reinforcing error tolerance. Sometimes a simple sentence such as "Don't worry, we all make

errors” can be an effective way to create a perception of error tolerance. That being said, it is important for managers to clarify that error tolerance does not mean error permissiveness.

The results also suggest implications for managers who would like to encourage learning behavior. This study supports the viewpoint that individuals should not learn in fear and anxiety. Error tolerance can boost employees’ confidence in their ability to successfully perform tasks and remove psychological barriers to information-sharing. Individuals learn better when they believe in their own competence, are willing to talk to each other, share knowledge and information, and take the initiative to explore innovative solutions. Learning initiated by the negative emotions resulting from the intolerance of errors may not be effective (Zhao, 2011), because the intensified cognition that may be triggered by negative emotions can be neutralized by one’s cognitive focus on covering up errors. Accordingly, one will not have sufficient cognitive resources for learning. Intolerance of errors can also cause employees to miss out on many learning opportunities if the employees feel that they need to hide errors. Even if the failures are disclosed, if employees do not perceive their organizations to be error-tolerant places, they may attribute service failures to other factors. To achieve optimal learning outcomes, therefore, it is necessary for organizations to tolerate errors. Learning/training transfer is more effective when it is based on allowing or tolerating errors (Keith and Frese, 2008).

Hospitality managers should also realize the importance of employees promptly reporting their errors. In spite of the value of error reporting, most individuals remain reluctant to report errors. A survey of 360 managers from different industries indicated that 88% of managers would address errors made by others in private. Fifty-four percent of managers reported that they were informed of errors in private (Hagen, 2013). It is hospitality managers’ responsibility to create a work environment in which employees do not experience psychological barriers to reporting

errors. We propose that managers look to the aviation industry for a model of how to set up a “confidential, voluntary, non-punitive” reporting system that allows employees to report errors that occur in the workplace. The purpose of such a reporting system is not to identify who made errors but to identify learning/training needs, optimize work procedures, and design better service.

#### *Limitations and recommendations for future study*

Several limitations merit consideration. First, although employees’ supervisors were asked to rate employees’ service recovery performance to mitigate social desirability bias, future researchers should collect the antecedent, mediator, and outcome variables at three different time points to identify mediation effects using these longitudinal data. Establishing causal relationships would advance scholars’ understanding of the relationship among the constructs investigated in this study. For example, research on training and learning suggests that one’s self-efficacy tends to increase after learning. Second, this study focused on the cognitive effects of error tolerance such as psychological safety and self-efficacy. Future studies should examine how (in)tolerance of errors variously shapes employees’ discrete emotions, including guilt, shame, anger, gratitude and pride. Third, self-efficacy is a result of both organizational factors and individual personality traits. It would thus be useful to examine the interaction between error tolerance and personality on perceptions of self-efficacy. In addition, the current study measured error reporting using a single-item measure, adopted from Guchait et al. (2016a). Future studies should develop a multiple-item scale of error reporting that particularly applies to the hospitality industry. Finally, this research relied on non-probability convenience sampling. Although the data were collected from typical restaurants where employees who took customers’ orders, the sample used in this study may not fully represent the characteristics of the whole population of



interest. Future studies might adopt probability sampling methods in order to generalize from the research findings to different contexts.

## **Reference**

Agarwal, P. and Farndale, E. (2017), "High-performance work systems and creativity implementation: the role of psychological capital and psychological safety", *Human Resource Management Journal*, Vol. 27 No.3, pp. 440-458.

Akay, D. (2011), "Grey relational analysis based on instance based learning approach for classification of risks of occupational low back disorders", *Safety Science*, Vol. 49 No.8-9, pp. 1277-1282.

Alicke, M. D. (2000), "Culpable control and the psychology of blame", *Psychological bulletin*, Vol. 126 No.4, pp. 556.

Argyris, C. (2017), *Integrating the Individual and the Organization*, Routledge.

Ashill, N. J., Carruthers, J. and Krisjanous, J. (2005), "Antecedents and outcomes of service recovery performance in a public health-care environment", *Journal of Services Marketing*, Vol. 19 No.5, pp. 293-308.

Babakus, E., Yavas, U., Karatepe, O. M. and Avci, T. (2003), "The effect of management commitment to service quality on employees' affective and performance outcomes", *Journal of the Academy of marketing Science*, Vol. 31 No.3, pp. 272-286.

Baker, G. R. and Norton, P. (2001), "Making patients safer! Reducing error in Canadian healthcare", *Health care Papers*, Vol. 2 No.1, pp. 10-31.

Bandura, A. (2001), "Social cognitive theory: An agentic perspective", *Annual review of psychology*, Vol. 52 No. 1, pp.1-26.

Bandura, A. (2010), "Self-efficacy", *The Corsini encyclopedia of psychology*, pp.1-3.

Bandura, A. (2012), *Going global with social cognitive theory: From prospect to paydirt*. In *Applied psychology* (pp. 65-92), Psychology Press.

Bandura, A. (2013), *Regulative function of perceived self-efficacy*. In *Personnel selection and classification* (pp. 279-290). Psychology Press.

Bandura, A. (2014), *Social cognitive theory of moral thought and action*. In *Handbook of moral behavior and development* (pp. 69-128). Psychology Press.

Barach, P. and Small, S.D. (2000), "Reporting and preventing medical mishaps: lessons from non-medical near miss reporting systems", *Bmj*, Vol. 320 No. 7237, pp.759-763.

Basit, A. A. (2017), "Trust in supervisor and job engagement: Mediating effects of psychological safety and felt obligation", *The Journal of psychology*, Vol. 151 No.8, pp. 701-721.

Cannon, M. D. and Edmondson, A. C. (2001), "Confronting failure: Antecedents and consequences of shared beliefs about failure in organizational work groups", *Journal of*

*Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, Vol. 22 No.2, pp. 161-177.

Chan, C. C., Pearson, C. and Entekin, L. (2003), "Examining the effects of internal and external team learning on team performance", *Team Performance Management: an international journal*, Vol. 9 No.7/8, pp. 174-181.

Chen, G., Gully, S.M. and Eden, D. (2001), "Validation of a new general self-efficacy scale", *Organizational research methods*, Vol. 4 No. 1, pp.62-83.

Chen, I. S. (2017), "Computer self-efficacy, learning performance, and the mediating role of learning engagement", *Computers in Human Behavior*, Vol. 72, pp. 362-370.

Chillarege, K. A., Nordstrom, C. R. and Williams, K. B. (2003), "Learning from our mistakes: Error management training for mature learners", *Journal of business and psychology*, Vol. 17 No.3, pp. 369-385.

Choi, C. H., Kim, T. T., Lee, G. and Lee, S. K. (2014), "Testing the stressor–strain–outcome model of customer-related social stressors in predicting emotional exhaustion, customer orientation and service recovery performance", *International Journal of Hospitality Management*, Vol. 36, pp. 272-285.

Consiglio, C., Borgogni, L., Di Tecco, C. and Schaufeli, W. B. (2016), "What makes employees engaged with their work? The role of self-efficacy and employee's perceptions of social context over time", *Career development international*.

Dahlin, K.B., Chuang, Y.T. and Roulet, T.J. (2018), "Opportunity, motivation, and ability to learn from failures and errors: Review, synthesis, and ways to move forward", *Academy of Management Annals*, Vol. 12 No.1, pp.252-277.

Delizonna, L. (2017), “High-performing teams need psychological safety. Here’s how to create It”, *Harvard Business Review*, Vol. 8, pp. 1-5.

Detert, J. R. and Burris, E. R. (2007), “Leadership behavior and employee voice: Is the door really open?”, *Academy of management journal*, Vol. 50 No. 4, pp. 869-884.

Deverell, E. and Olsson, E. K. (2009), “Learning from crisis: a framework of management, learning and implementation in response to crises”, *Journal of Homeland Security and Emergency Management*, Vol. 6 No.1.

Dimitrova, N. G., Van Hooft, E. A., Van Dyck, C. and Groenewegen, P. (2017), “Behind the wheel: What drives the effects of error handling?”, *The Journal of social psychology*, Vol. 157 No.6, pp. 658-672.

Edmondson, A. (1999), “Psychological safety and learning behavior in work teams”, *Administrative science quarterly*, Vol. 44 No.2, pp. 350-383.

Edmondson, A. C. (2004), “Learning from mistakes is easier said than done: Group and organizational influences on the detection and correction of human error”, *The Journal of Applied Behavioral Science*, Vol. 40 No.1, pp. 66-90.

Edmondson, A. C. and Lei, Z. (2014), “Psychological safety: The history, renaissance, and future of an interpersonal construct”, *Annu. Rev. Organ. Psychol. Organ. Behav.*, Vol. 1 No.1, pp. 23-43.

Edmondson, A. C. and Verdin, P. J. (2018), “The strategic imperative of psychological safety and organizational error management”, In *How Could This Happen?*, pp. 81-104. Palgrave Macmillan, Cham.

Eisenberger, R., Huntington, R., Hutchison, S. and Sowa, D. (1986), “Perceived organizational support”, *Journal of Applied psychology*, Vol. 71 No.3, pp.500.

Emby, C. E., Zhao, B. and Sieweke, J. (2018), "Audit senior modeling fallibility and audit juniors' responses to self-discovered errors: The mediating effects of error strain and error-related self-efficacy".

Farag, A., Blegen, M., Gedney-Lose, A., Lose, D. and Perkhounkova, Y. (2017), "Voluntary medication error reporting by ED nurses: examining the association with work environment and social capital", *Journal of Emergency Nursing*, Vol. 43 No.3, pp.246-254.

Fornell, C. and Larcker, D. F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of marketing research*, Vol.18 No.1, pp. 39-50.

Frazier, M. L., Fainshmidt, S., Klinger, R. L., Pezeshkan, A. and Vacheva, V. (2017), "Psychological safety: A meta-analytic review and extension", *Personnel Psychology*, Vol. 70 No.1, pp. 113-165.

Frese, M. and Keith, N. (2015), "Action errors, error management, and learning in organizations", *Annual review of psychology*, Vol. 66, pp. 661-687.

Furlan, A., Galeazzo, A. and Paggiaro, A. (2019), "Organizational and perceived learning in the workplace: a multilevel perspective on employees' problem solving", *Organization Science*, Vol. 30 No.2, pp. 280-297.

Gong, Y., Cheung, S. Y., Wang, M. and Huang, J. C. (2012), "Unfolding the proactive process for creativity: Integration of the employee proactivity, information exchange, and psychological safety perspectives", *Journal of management*, Vol. 38 No. 5, pp. 1611-1633.

Grigg, S., Perera, H. N., McIlveen, P. and Svetleff, Z. (2018), "Relations among math self efficacy, interest, intentions, and achievement: A social cognitive perspective", *Contemporary Educational Psychology*, Vol. 53, pp. 73-86.

Guchait, P., Abbott, J. L., Lee, C. K., Back, K. J. and Manoharan, A. (2019), “The influence of perceived forgiveness climate on service recovery performance: The mediating effect of psychological safety and organizational fairness”, *Journal of Hospitality and Tourism Management*, Vol. 40, pp. 94-102.

Guchait, P., Lee, C., Wang, C. Y. and Abbott, J. L. (2016) c, “Impact of error management practices on service recovery performance and helping behaviors in the hospitality industry: The mediating effects of psychological safety and learning behaviors”, *Journal of Human Resources in Hospitality & Tourism*, Vol. 15 No.1, pp. 1-28.

Guchait, P., Neal, J. A. and Simons, T. (2016) a., “Reducing food safety errors in the United States: Leader behavioral integrity for food safety, error reporting, and error management”, *International Journal of Hospitality Management*, Vol. 59, No. 11-18.

Guchait, P., Paşamehmetoğlu, A. and Lanza-Abbott, J. (2015), “The importance of error management culture in organizations: the impact on employee helping behaviors during service failures and recoveries in restaurants”, *Journal of Human Resources in Hospitality & Tourism*, Vol. 14 No. 1, pp. 45-67.

Guchait, P., Paşamehmetoğlu, A. and Madera, J. (2016) b, “Error management culture: impact on cohesion, stress, and turnover intentions”, *The Service Industries Journal*, Vol. 36 No. 3-4, pp.124-141.

Guchait, P., Zhao, X., Madera, J., Hua, N. and Okumus, F. (2018), “Can error management culture increase work engagement in hotels? The moderating role of gender”, *Service Business*, Vol. 12 No.4, pp. 757-778.

Hagen, J. (2013), *Confronting mistakes: Lessons from the aviation industry when dealing with error*. Springer.

Hair, J. F. (2009), *Multivariate Data Analysis*.

Hair, J. F., Black, W. C., Babin, B. J. and Anderson, R. E. (2014), *Multivariate data analysis: Pearson new international edition*. Essex: Pearson Education Limited.

Helmreich, R. L. and Merritt, A. C. (2017, November), Safety and error management: The role of crew resource management, In *Aviation Resource Management: Proceedings of the Fourth Australian Aviation Psychology Symposium*, Routledge.

Hu, M. L. M., Horng, J. S. and Sun, Y. H. C. (2009), "Hospitality teams: Knowledge sharing and service innovation performance", *Tourism management*, Vol. 30 No.1, pp. 41-50.

Jung, H. S. and Yoon, H. H. (2017), "Error management culture and turnover intent among food and beverage employees in deluxe hotels: the mediating effect of job satisfaction", *Service Business*, Vol. 11 No. 4, pp. 785-802.

Kahn, W. A. (1990), "Psychological conditions of personal engagement and disengagement at work", *Academy of management journal*, Vol. 33 No. 4, pp. 692-724.

Kale, P., Singh, H. and Perlmutter, H. (2000), "Learning and protection of proprietary assets in strategic alliances: Building relational capital", *Strategic management journal*, Vol. 21 No. 3, pp. 217-237.

Kark, R. and Carmeli, A. (2009), "Alive and creating: The mediating role of vitality and aliveness in the relationship between psychological safety and creative work involvement", *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, Vol. 30 No. 6, pp. 785-804.

Kauppila, O. P. (2018), "How does it feel and how does it look? The role of employee motivation in organizational learning type", *Journal of Organizational Behavior*, Vol. 39 No.8, pp. 941-955.

Keith, N. and Frese, M. (2008), "Effectiveness of error management training: a meta-analysis", *Journal of Applied Psychology*, Vol. 93 No.1, pp. 59.

Kelly, L. L. (2018). *Medication error reporting: a qualitative study exploring student nurses' anticipated peer reactions to error reporting* (Doctoral dissertation, University of Alabama Libraries).

Kim, M. S. and Kim, C. H. (2019), "Canonical correlations between individual self-efficacy/organizational bottom-up approach and perceived barriers to reporting medication errors: a multicenter study", *BMC health services research*, Vol. 19 No. 1, pp. 495.

Kurtessis, J. N., Eisenberger, R., Ford, M. T., Buffardi, L. C., Stewart, K. A. and Adis, C. S. (2017), "Perceived organizational support: A meta-analytic evaluation of organizational support theory", *Journal of management*, Vol. 43 No.6, pp. 1854-1884.

Leape, L. L., Woods, D. D., Hatlie, M. J., Kizer, K. W., Schroeder, S. A. and Lundberg, G. D. (1998), "Promoting patient safety by preventing medical error", *Jama*, Vol. 280 No.16, pp. 1444-1447.

Lejeune, C., Beusaert, S. and Raemdonck, I. (2018), "The impact on employees' job performance of exercising self-directed learning within personal development plan practice", *The International Journal of Human Resource Management*, pp. 1-27.

Leroy, H., Dierynck, B., Anseel, F., Simons, T., Halbesleben, J. R., McCaughey, D. and Sels, L. (2012), "Behavioral integrity for safety, priority of safety, psychological safety, and patient safety: A team-level study", *Journal of Applied Psychology*, Vol. 97 No. 6, pp. 1273

Liang, J., Farh, C. I. and Farh, J. L. (2012), "Psychological antecedents of promotive and prohibitive voice: A two-wave examination", *Academy of Management Journal*, Vol. 55 No. 1, pp. 71-92.



- Lin, W. B. (2010), "Relevant factors that affect service recovery performance", *The service industries journal*, Vol. 30 No. 6, pp. 891-910.
- Linnenbrink, E.A. and Pintrich, P.R. (2003), "The role of self-efficacy beliefs in student engagement and learning in the classroom", *Reading & Writing Quarterly*, Vol. 19 No. 2, pp.119-137.
- Lipshitz, R., Popper, M. and Friedman, V. J. (2002), "A multifacet model of organizational learning," *The journal of applied behavioral science*, Vol. 38 No.1, pp. 78-98.
- Liu, J., Cho, S. and Putra, E.D. (2017), "The moderating effect of self-efficacy and gender on work engagement for restaurant employees in the United States", *International Journal of Contemporary Hospitality Management*, Vol. 29 No.1, pp. 624-642.
- Loewenstein, G. F., Weber, E. U., Hsee, C. K. and Welch, N. (2001), "Risk as feelings", *Psychological bulletin*, Vol. 127 No. 2, pp. 267.
- Luthans, F. and Peterson, S.J. (2002), "Employee engagement and manager self-efficacy", *Journal of management development*, Vol. 21 No. 5, pp. 376-387.
- Maddux, J. E. and Kleiman, E. M. (2018). *Self-efficacy*. Guilford Press.
- Martin, A. J. and Marsh, H. W. (2003), "Fear of failure: Friend or foe?", *Australian Psychologist*, Vol. 38 No. 1, pp. 31-38.
- Maurer, T. J., Hartnell, C. A. and Lipstreu, M. (2017), "A model of leadership motivations, error management culture, leadership capacity, and career success", *Journal of Occupational and Organizational Psychology*, Vol. 90 No.4, pp. 481-507.
- Mayer, R. C., Davis, J. H. and Schoorman, F. D. (1995), "An integrative model of organizational trust", *Academy of management review*, Vol. 20 No.3, pp. 709-734.

Möllering, G. and Sydow, J. (2019), "Trust trap? Self-reinforcing processes in the constitution of inter-organizational trust", In *Trust in contemporary society* (pp. 141-160). Brill.

Morrison, E. W. and Phelps, C. C. (1999), "Taking charge at work: Extrarole efforts to initiate workplace change", *Academy of management Journal*, Vol. 42 No. 4, pp. 403-419.

Namkung, Y. and Jang, S. (2010), "Service failures in restaurants: which stage of service failure is the most critical?", *Cornell Hospitality Quarterly*, Vol. 51 No. 3, pp.323-343.

Nelson, S. (2016), "Say, stay or thrive: the effects of leadership style and psychological safety on employee engagement".

Newman, A., Donohue, R. and Eva, N. (2017), "Psychological safety: A systematic review of the literature", *Human Resource Management Review*, Vol. 27 No.3, pp. 521-535.

Oxtoby, C., Ferguson, E., White, K. and Mossop, L. (2015), "We need to talk about error: causes and types of error in veterinary practice", *Veterinary Record*, Vol. 177 No.17, pp. 438-438.

Panadero, E., Jonsson, A. and Botella, J. (2017), "Effects of self-assessment on self-regulated learning and self-efficacy: Four meta-analyses", *Educational Research Review*, Vol. 22, pp.74-98.

Park, Y. and Choi, W. (2016), "The effects of formal learning and informal learning on job performance: the mediating role of the value of learning at work", *Asia Pacific Education Review*, Vol. 17 No. 2, pp. 279-287.

Pasamehmetoglu, A., Guchait, P., Tracey, J. B., Cunningham, C. J. and Lei, P. (2017), "The moderating effect of supervisor and coworker support for error management on service recovery performance and helping behaviors", *Journal of Service Theory and Practice*.

Poulston, J. (2008), "Hospitality workplace problems and poor training: a close relationship", *International Journal of Contemporary Hospitality Management*, Vol. 20 No.4, pp. 412-427.

Ram, T. and Laxmi. (2017), "Effect of Perceived Self-efficacy on Health Promoting Lifestyle of Female Employees", *Amity J Healthc Manage*, Vol. 2, pp. 21-35.

Rausch, A., Seifried, J. and Harteis, C. (2017), "Emotions, coping and learning in error situations in the workplace. *Journal of Workplace Learning*".

Reagans, R., Argote, L. and Brooks, D. (2005), "Individual experience and experience working together: Predicting learning rates from knowing who knows what and knowing how to work together", *Management science*, Vol. 51 No. 6, pp. 869-881.

Reason, J. (2000), "Human error: models and management", *Bmj*, Vol. 320 No. 7237, pp. 768-770.

Rybowiak, V., Garst, H., Frese, M. and Batinic, B. (1999), "Error orientation questionnaire (EOQ): Reliability, validity, and different language equivalence", *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, Vol. 20 No. 4, pp. 527-547.

Scott, G. (2001), "Accountability for service excellence", *Journal of Healthcare Management*, Vol. 46 No.3, pp. 152.

Senge, P. M. (2014), *The fifth discipline fieldbook: Strategies and tools for building a learning organization*. Crown Business.

Sexton, J. B., Thomas, E. J. and Helmreich, R. L. (2000), "Error, stress, and teamwork in medicine and aviation: cross sectional surveys", *Bmj*, Vol. 320 No. 7237, pp. 745-749.

Siemens, E., Roth, A. V., Balasubramanian, S. and Anand, G. (2009), "The influence of psychological safety and confidence in knowledge on employee knowledge sharing", *Manufacturing & Service Operations Management*, Vol. 11 No. 3, pp. 429-447.

Simosi, M. (2012), "The moderating role of self-efficacy in the organizational culture–training transfer relationship", *International Journal of Training and Development*, Vol. 16 No. 2, pp.92-106.

Sogh, S. S. and Zarei, R. (2016), "The Relationship between Organizational Self-Esteem and Career Self-Efficacy with Job Adjustment among the Boer Ahmed Township's Educational Employee", *International Journal of Humanities and Cultural Studies (IJHCS) ISSN 2356-5926*, Vol. 2 No.4, pp. 1774-1791.

Song, J. H., Chai, D. S., Kim, J. and Bae, S. H. (2018), "Job performance in the learning organization: The mediating impacts of self-Efficacy and work engagement", *Performance Improvement Quarterly*, Vol. 30 No.4, pp. 249-271.

Soydemir, D., Seren Intepeler, S. and Mert, H. (2017), "Barriers to medical error reporting for physicians and nurses", *Western journal of nursing research*, Vol. 39 No.10, pp. 1348-1363.

Tax, S.S. and Brown, S.W. (1998), "Recovering and learning from service failure", *MIT Sloan Management Review*, Vol. 40 No. 1, pp.75.

Tjosvold, D., Yu, Z. Y. and Hui, C. (2004), "Team learning from mistakes: the contribution of cooperative goals and problem-solving", *Journal of Management Studies*, Vol. 41 No.7, pp. 1223-1245.

Tucker, A. L. and Edmondson, A. C. (2003), "Why hospitals don't learn from failures: Organizational and psychological dynamics that inhibit system change", *California management review*, Vol. 45 No. 2, pp. 55-72.

Tucker, A. L., Edmondson, A. C. and Spear, S. (2002), "When problem solving prevents organizational learning", *Journal of Organizational Change Management*, Vol. 15 No. 2, pp. 122-137.

Unal, A. and Seren, S. (2016), "Medical error reporting attitudes of healthcare personnel, barriers and solutions: a literature review", *J Nurs Care*, Vol. 5 No. 6, pp. 377.

van den Brand, W., Wognum, I., Nikolova, I. and De Hauw, S. (2018), "Can leadership style enhance or impoverish employee innovative work behaviour: the mediating role of psychological safety and team learning", In *WAOP conference 2018: Werkgemeenschap van onderzoekers in de Arbeids- & Organisationspsychologie* (pp. 13-14). Associatie KU Leuven.

Van Dyck, C., Dimitrova, N. G., De Korne, D. F. and Hiddema, F. (2013), "Walk the talk: Leaders' enacted priority of safety, incident reporting, and error management. In *Leading in health care organizations: Improving safety, satisfaction and financial performance*, pp. 95-117.

Van Dyck, C., Frese, M., Baer, M. and Sonnentag, S. (2005), "Organizational error management culture and its impact on performance: a two-study replication", *Journal of applied psychology*, Vol. 90 No. 6, pp. 1228.

Van Dyne, L. and LePine, J. A. (1998), "Helping and voice extra-role behaviors: Evidence of construct and predictive validity", *Academy of Management journal*, Vol. 41 No. 1, pp. 108-119.

Van Vaerenbergh, Y. and Orsingher, C. (2016), "Service recovery: An integrative framework and research agenda", *Academy of Management Perspectives*, Vol. 30 No.3, pp. 328-346.

Wakefield, B. J., Blegen, M. A., Uden-Holman, T., Vaughn, T., Chrischilles, E. and Wakefield, D. S. (2001). Organizational culture, continuous quality improvement, and medication administration error reporting. *American Journal of Medical Quality*, Vol. 16 No. 4, pp. 128-134.

Walters, K. N. and Diab, D. L. (2016), "Humble leadership: Implications for psychological safety and follower engagement", *Journal of Leadership Studies*, Vol. 10 No. 2, pp. 7-18.

Wang, X., Guchait, P., Lee, J. and Back, K. J. (2019), "The importance of psychological safety and perceived fairness among hotel employees: The examination of antecedent and outcome variables", *Journal of Human Resources in Hospitality & Tourism*, Vol. 18 No.4, pp. 504-528.

Wang, X., Guchait, P., Madera, J.M. and Pasamehmetoğlu, A., 2018, "Is "Do it right the first time" necessarily right? The importance of error management culture in the hospitality industry", *International Journal of Contemporary Hospitality Management*, Vol. 30 No. 3, pp.1398-1418.

Wang, X., Guchait, P. and Paşamehmetoğlu, A. (2020), "Why should errors be tolerated? Perceived organizational support, organization-based self-esteem and psychological well-being", *International Journal of Contemporary Hospitality Management*.

Wanless, S. B. (2016), "The role of psychological safety in human development". *Research in Human Development*, Vol. 13 No.1, pp. 6-14.

Wei, W., Hua, N., Fu, X. and Guchait, P. (2017), "The impacts of hotels' error management culture on customer engagement behaviors (CEBs)", *International Journal of Contemporary Hospitality Management*.

Weinzimmer, L. G. and Esken, C. A. (2017), "Learning from mistakes: How mistake tolerance positively affects organizational learning and performance", *The Journal of Applied Behavioral Science*, Vol. 53 No.3, pp. 322-348.

Yao, S., Wang, X., Yu, H. and Guchait, P. (2019), "Effectiveness of error management training in the hospitality industry: Impact on perceived fairness and service recovery performance", *International Journal of Hospitality Management*, Vol. 79, pp. 78-88.

Ye, Q., Wang, D. and Li, X. (2018), "Promoting employees' learning from errors by inclusive leadership", *Baltic Journal of Management*.

Zhang, Y., Liu, H., Wang, M. and Qing, P. (2018), “The impact of challenge stress and hindrance stress on employee creativity: The mediating role of self-efficacy and the moderating role of justice”, *Acta Psychologica Sinica*, Vol. 50 No.4, pp. 450-461.

Zhao, B. (2011), “Learning from errors: The role of context, emotion, and personality”, *Journal of organizational Behavior*, Vol. 32 No. 3, pp. 435-463.

Zhao, B. and Olivera, F. (2006), “Error reporting in organizations”, *Academy of Management Review*, Vol. 31 No. 4, pp. 1012-1030

### Tables and Figures

**Table 1.** Means, standard deviations, correlations, and CFA results.

	M	SD	1	2	3	4	5	6
1. Error tolerance	4.38	1.01	--	.02	.03	.14	.03	.02
2. Psychological safety	4.94	1.23	.14* <sup>a</sup>	--	.20	.19	.01	.18
3. Self-efficacy	5.46	.98	.16*	.45*	--	.11	.07	.18
4. Learning behavior	5.00	1.10	.38*	.44*	.33*	--	.01	.08
5. SRP	5.31	1.04	.18*	.10	.27*	.08	--	.04
6. Error reporting	4.88	1.68	.15*	.42*	.43*	.28*	.20*	--

Goodness-of-fit statistics

$\chi^2(278) = 531.80, p < .05$

$\chi^2/df = 1.91$

CFI = .94, IFI = .94

RMSEA = .055

*Note.* SRP = service recovery performance;

CFI = comparative fit index; IFI = incremental fit index;

RMSEA = root mean square error of approximation.

\* $p < .05$

a. Correlations are below the diagonal.

b. Squared multiple correlations above the diagonal.

**Table 2.** Factor loadings, CCR, AVE, and Cronbach' alpha results

	<b>Factor loadings</b>	<b>CCR</b>	<b>AVE</b>	<b>T-value</b>	<b>Cronbach' alpha</b>
<i>Error tolerance</i>		.79	.43		.75
1	.56			13.01	
2	.74			17.21	
3	.64			7.12	
4	.61			14.89	
5	.71			16.03	
<i>Psychological safety</i>		.82	.61		.82
1	.81			27.68	
2	.83			29.29	
3	.68			18.01	
<i>Learning behavior</i>		.74	.41		.75



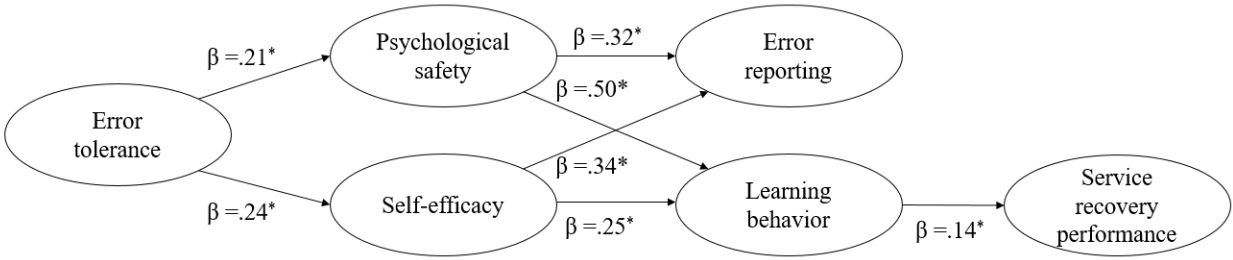
1	.65			18.92
2	.70			21.40
3	.65			13.58
4	.56			11.52
<i>Self-efficacy</i>		.90	.54	.91
1	.77			30.63
2	.74			26.62
3	.75			24.74
4	.79			31.58
5	.78			30.12
6	.75			26.58
7	.62			16.79
8	.67			21.75
<i>Service recovery performance</i>		.92	.65	.92
1	.68			21.84
2	.78			31.88
3	.81			35.88
4	.88			54.67
5	.85			33.39
6	.82			36.01

**Table 3.** Indirect effects and 95% confidence intervals (CI) for the paths

Model pathways	Estimated effect	95% CI	
		Lower CI	Upper CI
ET → PS & SE → LB → SRP	.02*	.001	.06
ET → PS & SE → LB	.16*	.06	.29
ET → PS & SE → ER	.15*	.06	.24

**Notes:** ET: error tolerance; PS: psychological safety; SE: self-efficacy; LB: learning behavior; SRP: service recovery performance; ER: error reporting. \*p < 0.05

**Figure 1.** Results of the research model



**Note.**  $*p < .05$ .  $\chi^2 = 696.20$ ,  $df = 307$ ,  $p < 0.05$ ; CFI = 0.90; IFI = 0.90; RMSEA = 0.06;  $\chi^2/df = 2.27$