



Investigation of entrepreneurial orientation development with airline employees: Moderating roles of a cooperation-competition mechanism

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ABSTRACT

Entrepreneurial orientation (EO) represents a powerful predictor of firm performance, and the cooperation-competition mechanism is gaining importance in entrepreneurial development. In this study, we propose three research paths: (1) exploring how knowledge sharing influences EO; (2) exploring how knowledge sharing correlates with EO as a mediator of motivation, creativity, and human capital; and (3) exploring how cooperation, climate and competitive intensity as critical moderators affect motivation and creativity. We tested our hypotheses using data collected from 505 airline employees from airline organizations. The following findings were identified: (1) knowledge sharing is positively and directly correlated with EO; (2) knowledge sharing affects EO through motivation, creativity, and human capital but creativity does not indicate mediation effects between motivation and human capital; (3) both cooperative climate and competition intensity are positively affected by motivation and creativity; and (4) competition intensity positively affects knowledge sharing and motivation. To address the theoretical and managerial contribution of this study, a robustness examination was conducted to generalize the findings. Furthermore, this study further enriches the creativity and EO theory of uniqueness and identification. More importantly, this study provides effective and appropriate methods for airline organization management by guiding their employees to conduct entrepreneurial orientation in a cooperative circumstance successfully, and it especially emphasizes the role of knowledge sharing in facilitating motivation, creativity and human capital. Lastly, limitations and suggestions for future research are also discussed.

1. Introduction

With the rapid development of tourism and the hospitality industry, there is increased interest in research on entrepreneurial orientation (EO) development (Peters and Kallmuenzer, 2015). Recently, empirical researchers have found that the EO literature is commonly associated with EO firm performance (Engelen et al., 2014). More importantly, researchers have recognized EO as a powerful predictor of firm performance, which needs more discussion (Pittino et al., 2017; Kura, Abubakar, & Salleh 2020). In a turbulent environment, EO is considered an organizational resource that allows organizations to differentiate themselves from competitors (Ireland et al., 2003), and the organization may respond to challenges by promoting EO (Hernández-Linares et al., 2018).

Internationalization and globalization showed that airline industrial phenomena are not only pure competition but also accompanied by cooperative behavior among airline firms (Su et al., 2019). According to Klein et al. (2020), airline industries are more suitable for an analysis of cooperation-competition behavior because they face multimarket competition and need the intensity of cooperation to enter the new market. Furthermore, EO helps firms to be innovative and more active by maintaining cooperative relationships outside the organization rather than increasing the competitive force or acting aggressively against industry rivals (Franco and Haase, 2013). Additionally, EO helps airline firms to enlarge their learning capability and strengthens their competitive advantage position to sustain profitable growth (Chen et al., 2019). Regarding the relationships among EO, knowledge sharing and the concepts of sustainable competitive advantage (SCA), knowledge

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sharing enables entrepreneurs to be innovative regarding progressive world populations and reduces waste. The airline industry can affect future generations globally in terms of environmental and social impacts (Kim and Kim, 2018). In this instance, the airline industry places heavy emphasis on knowledge sharing to encourage EO and develop human resources to improve performance (Lee and Moon, 2018). Consequently, the crucial factors that determine better airline business performance is entrepreneurial marketing to promote proactiveness, risk-taking, and innovativeness (Allameh et al., 2020) and knowledge sharing to capture opportunities, leverage resources and support value creation (Gyanwali and Walsh, 2019). Specifically, previous tourism research has explored indicators to identify entrepreneurial characteristics of the airline industry. These include locus of control, creativity, ambiguity tolerance, risk-taking, need for achievement, diligence, challenge ability, and future vision (Sadeghi and Esteki, 2010). Furthermore, prior research has found that the tourism and hospitality students who obtain proper entrepreneurial education will promote the formation of their entrepreneurial intention, which will especially enhance their ability to face entrepreneurial challenges (Zhang et al., 2020). It is worth noting that employees with entrepreneurial characteristics embody the essential aspects of entrepreneurial development, as entrepreneurial characteristics are important when responding to market conditions and trends (Sahi et al., 2019). This phenomenon may be due in part to the focus on airline employees' EO development and their understanding of how the organization can most effectively utilize EO to maximize the overall level of a firm's performance.

Accordingly, EO is commonly associated with firm performance (Jeffrey et al., 2019; Yang et al., 2019; Vaznyte and Petra, 2019; Covin et al., 2020). This is especially true for firms focused in small- and medium-sized enterprise (SME) sectors (Asemokha et al., 2019; Sentanu and Praharjo, 2019) as well as the family-firm sector (Hernández-Linares et al., 2019). Furthermore, recent scholars have expanded the EO literature, crossing over from entrepreneurship to the education and medical fields, such as the university sector (Migliori et al., 2019) and hospital sector (Chahal et al., 2019). Since EO has been discussed regarding performance in SMEs, family firms, and the medical and education fields, we therefore posit that EO is applicable within the airlines sector.

In this instance, the literature is still scarce in explaining how knowledge-sharing and the cooperation-competition mechanism affect EO development in tourism and the hospitality industry. To address this gap, this study delves into the intersection of airline employees' knowledge sharing and EO. Against this background, this study answers the following questions: "How can the cooperation-competition mechanism influence the EO development of airline employees?" and "How can knowledge sharing affect EO within airline organizations?" Due to the lack of prior research regarding these questions, we propose the

following three research paths: (1) exploring how knowledge sharing influences EO, (2) exploring how knowledge sharing correlates with EO through the mediators of motivation, creativity, and human capital, and (3) exploring how cooperation climate and competitive intensity are critical moderators affecting motivation and creativity. The proposed research framework as shown in Fig. 1.

2. Literature review

2.1. Perceptions of knowledge sharing and entrepreneurial orientation

EO can be conceptualized and manifested in different ways, such as the concept of entrepreneurship and practice (Covin and Wales, 2019), especially related to the strategic formulation and decision-making process (Lyon et al., 2000; Al-Dhaafri and Alosani, 2020). Regarding their observations of firm performance through EO, Sentanu and Praharjo (2019) emphasized that creative ideas, innovative behavior, and entrepreneurial-oriented knowledge are the critical factors in creating industry-based SME activities and that a stronger entrepreneurial spirit results in better risk-taking ability and creates a better SME performance. Dess and Lumpkin (2005) argue that the researcher must consider the impacts of economic outcomes upon examining the relationship between EO and performance. Conversely, prior research shows that comprehensive performance measurement systems have a negative impact on EO (Taheri et al., 2019). EO and business model innovation (BMI) are important drivers to expand SMEs' international success (Asemokha et al., 2019). As Wood et al. (2004) note, EO is the criterion for an organization to exert creative innovation. In retrospect, the degree of EO will affect the choice of a firm's strategy in the travel industry (Dilts and Prough, 2001). As can be seen, EO acts as a strategy-maker in entrepreneurial decision-making (Wiklund and Shepherd, 2003).

The concept of EO is first introduced by Danny Miller (Covin and Lumpkin, 2011), and its dimensions have been widely discussed throughout EO scholarly literature in past decades (Wales, 2016). Since EO has been considered one of the most popular measurement scales in the domain of entrepreneurship research, prior empirical research articles define innovativeness, proactiveness, and risk-taking as three key dimensions of EO (Miller, 1983; Covin and Slevin, 1989). Whereas innovativeness and proactiveness are reflected in firm behavior, risk-taking is reflected in entrepreneurial attitude (Pittino et al., 2018). Following a new concept of EO, two dimensions are added as definitions, namely, autonomy and competitive aggressiveness. From an autonomy perspective, EO represents independent action of an individual or the implementation of a group's idea from transmission to completion in an organizational context. From a competitive aggressiveness perspective, EO determines the strength of how a new entrant competes with existing competitors in response to competitive threats (Lumpkin and Dess,

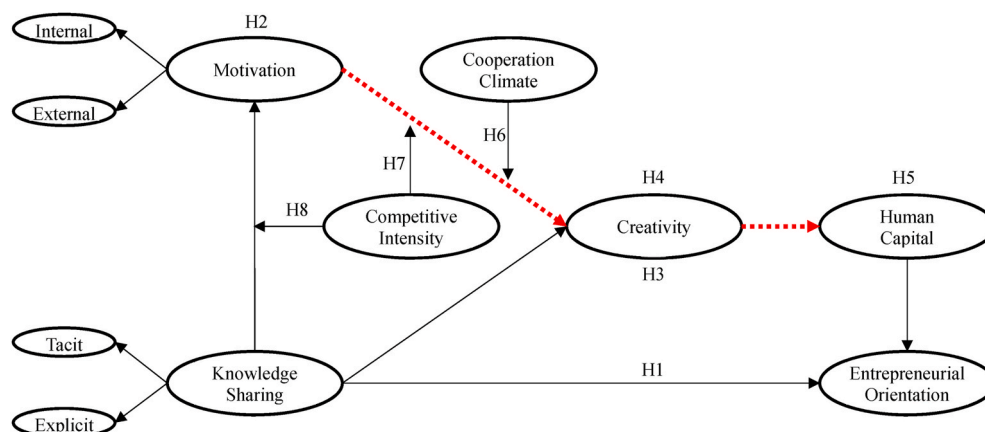


Fig. 1. Conceptual research framework – hypothesized model.

1996). Further, EO has been regarded as unidimensional and multidimensional conceptualizations of the construct (Wales, Gupta and Mousa, 2011; Govin and Lumpkin, 2011).

In general, knowledge sharing is one of the multidimensional concepts for knowledge management orientation (Kmieciak and Michna, 2018). Knowledge sharing determines the intention of employees to share knowledge within an organization (Hau et al., 2013). It is similar to a culture of social interaction among employees, such as a willingness to learn or exchange knowledge, experience, and skills with each other (Lin, 2007). Performing knowledge sharing intensively among employees in an entrepreneurial environment will improve the organization's EO ability (De Clercq, Dimov and Thongpapanl, 2013), prevent the threat of turnover from employees or competitors (Hanif et al., 2018), facilitate the organization's knowledge accumulation (Farooq and Vij, 2018), sustain competitive advantage, and improve firm performance (Haas and Hansen, 2007; Hormiga et al., 2017; Mohammad et al., 2018). Conversely, if knowledge is not shared among individuals or groups, it might cause severe unexpected job loss, and a work environment of threats and job loss could further prevent employees from sharing knowledge (Ghafoor et al., 2017). Therefore, the greatest obstacle to accumulating knowledge within an organization is the unwillingness to share knowledge voluntarily. At this point, knowledge sharing (as opposed to knowledge hoarding) is encouraged within an organization (Kluge, 2001). That is, higher knowledge sharing will influence EO (De Clercq et al., 2013), and cultivating knowledge sharing is crucial to entrepreneurial development (King and Marks Jr., 2008; Farooq and Vij, 2018).

EO strengthens the relationship between knowledge-based resources and firm performance, and it is recommended for management to explore EO and knowledge management in order to gain more opportunities (Wiklund and Shepherd, 2003). Based on the idea that present knowledge is better than past knowledge, entrepreneurs should pay attention to the acquisition of task-related knowledge (Unger et al., 2011). Although Ghafoor et al. (2017) argued that EO and organizational citizenship behavior will not enhance willingness to share knowledge, a team culture with high trust and loyalty will promote internal collaboration and knowledge sharing as well as improve the firm's EO (Brettel et al., 2015). In terms of cooperation, high-EO distributors are more likely to cooperate with manufacturers than low-EO distributors are, as they prefer to share knowledge while focusing on product differentiation (Li et al., 2011). Furthermore, when knowledge sharing mediates psychological ownership and EO, it reflects the attitude of management, and the employees' emotional and affective factors will stimulate entrepreneurial outcomes (Pittino et al., 2018).

Since the integration of knowledge sharing and EO could help the organization perform better, a high level of knowledge sharing relates to stronger EO; thus, we assume that knowledge sharing promotes the development of EO. With the foregoing discussion, we hypothesize the following:

Hypothesis 1. Knowledge sharing is positively and directly correlated with entrepreneurial orientation.

2.2. Mediating role of motivation, creativity, and human capital

Successful knowledge sharing can be achieved by knowledge sharing intentions (Mohammad et al., 2018) and motivational factors, such as the relationship between motivation (extrinsic and intrinsic) and knowledge sharing behavior (Lin, 2007). Thus, knowledge sharing plays a vital role in helping organizations retain relevant information, opinions, suggestions, and expertise by individuals and others, as monetary rewards are an effective motivator for organizations to enhance performance (Bartol and Srivastava, 2002). Furthermore, individual motivations and social capital are the essential factors in explaining knowledge sharing intention. The finding reveals that organizational rewards (extrinsic motivation) had a positive impact on intentions to

engage in explicit knowledge sharing but a negative influence on tacit knowledge sharing (Hau et al., 2013). However, Perez et al. (2009) argued that only intrinsic motivation influences employees' knowledge sharing. Gu and Gu (2011) emphasize the importance of employees' personal motivation factors regarding knowledge sharing, and the manager becomes the important figure in observing how employees learn and grow within the organization. Indeed, Gagné et al. (2019) were the first to discuss the relationship among motivation, knowledge sharing, and knowledge hiding; they revealed that self-control and the cognitive demands of a job had impacts on motivation to engage in knowledge sharing.

From one perspective, knowledge sharing indicates useful knowledge or information exchange, which acts as an important motivational driver to enhance employees' creativity. Higher intrinsic motivation will positively influence a higher degree of knowledge sharing and higher creativity (Suwanti, 2019). Therefore, a high level of intrinsic motivation (such as personal motivation and underlying motivation) and extrinsic motivation (such as salary and job security) enable employees to be more creative (Muñoz-Pascual and Galende, 2017). In addition, people with high extrinsic motivations as well as those with low intrinsic motivation will increase creativity (Zhu et al., 2018). Thus, motivation plays a critical role in developing individual creativity (Amabile, 1988). He et al. (2013) mentioned that employees' creativity can be motivated by sharing explicit knowledge but argue that sharing tacit knowledge could be an obstacle to individual creative performance. By responding to this circumstance, organizational leaders may develop cognition and motivation mechanisms in order to encourage employees to boost their creativity (Ma et al., 2013).

As such, Mohammad et al. (2018) concluded that motivation has a mediating effect on the relationships among organizational commitment and environmental dynamism towards attitudes on knowledge sharing but not intentions to engage in knowledge sharing. According to Hassan and Din (2019), knowledge sharing within the education sector showed a significant impact on high-performance work systems and creativity. By contrast, they argued that no mediation had the opposite effect on high-performance work systems and intrinsic motivation. As knowledge and motivation are considered to be key determinants of enhancing the creativity of an organization, they should also determine the implementation of intrinsic motivation, tacit knowledge, and explicit knowledge management (Muñoz-Pascual and Galende, 2017). Although intrinsic motivation positively mediates CSR perception and creativity, it has no direct effect on employees' creativity (Hur et al., 2018). Therefore, motivation is likely to encourage knowledge sharing and creativity within an organization, so we postulate that motivation has an indirect impact on knowledge sharing and creativity. Hence, we hypothesize the following:

Hypothesis 2. Motivation mediates the relationship between knowledge sharing and creativity such that knowledge sharing is positively and indirectly correlated with creativity through motivation.

Knowledge and skill learners always regard creativity as a new challenge; they can easily construct their own creativity experience by obtaining basic guidance (Tan et al., 2014). Thus, employees with high levels of knowledge, abilities, and skills have played a relevant role in introducing management innovation (Nieves and Segarra-Ciprés, 2015). Horg et al. (2015) first proposed the application of a 4P model (such as people, place, process, and product) in tourism and hospitality organizations and found that the creativity process has a significant impact on employees' satisfaction and creativity. Moreover, Men et al. (2017) revealed that knowledge sharing has a positive impact on team creativity, which is related to team knowledge sharing, for new product development and improvement (Lee et al., 2010). Thus, the success of leadership may stimulate creativity and promote knowledge sharing (Ma et al., 2013; Hussain et al., 2017). Wu, Lee, and Tsai (2012) state that technological creativity and knowledge sharing facilitate individual performance. Individual knowledge sharing directly impacts innovative

behavior. Therefore, the study concluded that organizational knowledge sharing indirectly impacts innovative behavior (Kim and Park, 2015).

Accordingly, innovative culture plays a mediating role in the relationship between innovative performance and human capital, as it could help to enhance employees' creativity with ideas and products (Hanifah et al., 2017). However, Tahooneh and Shatalebi (2012) argue that human capital is not related to organizational creativity. Yet human capital resources are the important driver of successful organizational strategies. Hence, human capital can be defined as a driving factor of a firm's product, process, and service innovation (Antwi et al., 2020; McGuirk et al., 2015). Creativity and innovation are the essential elements throughout all entrepreneurial activity (Sadeghi and Esteki, 2010). In its role as a mediator, creativity partially mediates between entrepreneurial passion and entrepreneurial alertness (Campos, 2016). Moreover, Zhang et al. (2020) emphasized the important mediating role that creativity plays in psychological capital and opportunity recognition. In addition, creativity also mediates the relationship between engagement and job performance, which means that if highly engaged employees can concentrate their energy on creative ideas at the beginning of their work, it will help to improve their work performance (Ismail et al., 2019).

Consequently, creativity is likely to encourage knowledge sharing human capital and motivational human capital within an organization. Therefore, we postulate that creativity positively mediates the indirect impacts on knowledge sharing human capital and motivational human capital. Thus, we hypothesize the following:

Hypothesis 3. Creativity mediates the relationship between knowledge sharing and human capital such that knowledge sharing is positively and indirectly correlated with human capital through creativity.

Hypothesis 4. Creativity mediates the relationship between motivation and human capital such that motivation is positively and indirectly correlated with human capital through creativity.

The success of entrepreneurship development is related to human capital, which is an important indicator for measuring entrepreneurial spirit and an entrepreneur's success (Unger et al., 2011; Marvel et al., 2016). The elements of human capital comprise employee knowledge, skills, and capabilities (Kianto et al., 2017) as well as an ability to produce all of the above resources (Zawaideh et al., 2018). From the perspective of SMEs, human capital is a benefit for formulating international marketing strategies in order to gain opportunities in the global marketplace (Javalgi and Todd, 2011).

Most recently, researchers have examined human capital that serves as a mediator of the relationship between human resource management (HRM) and performance (Boon et al., 2018), knowledge-based HRM practices and structural capital as well as relational capital (Kianto et al., 2017), leadership development practices and sales growth (Subramony et al., 2018), firm-level high-performance work systems (HPWS) and unit organizational ambidexterity (Chang, 2015), and HPWS and performance (Raineri, 2017). Although Barney (1991) demonstrates that a higher level of human capital may achieve higher performance, Raineri (2017) argues that a higher level of mediation of human capital may fail to achieve better performance. In contrast to the previous literature, human capital is defined as a pioneer of structural and relational capital (Kianto et al., 2017). Furthermore, Chang (2015) argues that the enhancement of human capital will help the organization improve mastery in contradictory thinking, performance in current and new job duties, refinement of existing knowledge, and acquisition of new knowledge.

Therefore, human capital is likely to encourage creativity EO within an organization. Accordingly, we postulate that human capital mediates the positive and indirect effect of creativity and EO. Thus, we hypothesize the following:

Hypothesis 5. Human capital mediates the relationship between creativity and entrepreneurial orientation such that creativity is

positively and indirectly correlated with entrepreneurial orientation through human capital.

2.3. Moderation role of cooperation climate and competitive intensity

Central to most organizations, employees can be motivated to release their information proactively in a cooperative environment (Sveiby and Simons, 2002). The continued existence of noncooperation will become an obstacle to the development of an organization. In a collaborative learning environment, there is a positive relationship between motivation constructs and professional learning (Durksen et al., 2017). As can be seen, the microclimate of the organization stipulates the decisions and common understanding of employees' working conditions (Ghafoor et al., 2017). Hence, fostering a higher cooperation climate within an organization could inspire team members to cooperate, communicate, and interact with each other as well as to exchange resources to solve team problems (Li et al., 2011). Furthermore, Zhu et al. (2018) found that intrateam collaborative climates had a positive effect on both intrinsic and extrinsic motivation. Since the demands of cooperative behavior among team members are increased, the motivation to develop a cooperative climate is gaining importance.

Under certain circumstances, less creative individuals have higher cooperation intentions than highly creative individuals do when they encounter creative problems. Less creative individuals prefer to seek partners; as such, cooperation will enhance their creative ability and performance (Xue et al., 2018). Since collectivistic value will enhance creativity (Bechtoldt et al., 2012), the cooperation climate between team members contributes to innovation performance and boosts team creativity (Bittner et al., 2016). In addition, Zhu et al. (2018) found that collaborative team climates had a direct impact on individual creativity. Furthermore, a collaborative team climate also moderates and indirectly affects the relationship between intrinsic motivation and creativity. Furthermore, an organizational climate moderates the relationship between human capital and HRM systems. A negative interaction indicates that a poor climate will affect productivity (Neal et al., 2005). In addition, an innovative team climate fully mediates the relationship between education-level diversity and team performance; it also explores how team members might demonstrate their talents in different ways, and it may lead to team diversity and unexpected team outcomes (Valls et al., 2016). Hur et al. (2018) suggests examining the relationship between an organizational climate and creativity; employees' creative behavior will give priority to organizational rather than individual factors.

Since the literary background of the cooperation climate is similar to that of the organizational climate, collaborative climate, or team climate, our literature demonstrates that these closely related construct definitions predict the relationship between motivation and creativity. With regard to the motivation-creativity relationships, the cooperation climate is the crucial indicator for such a moderation effect. Therefore, we expect that a strong cooperation climate will influence airline employees' motivation and creativity. Thus, we derive the following hypotheses for cooperation climate:

Hypothesis 6. The cooperation climate moderates the relationship between motivation and creativity; such a relationship is strengthened when the cooperation climate is high.

There is a significant positive correlation between the competitive climate within the team and the extrinsic motivation of the team members; however, this correlation has not been shown with intrinsic motivation (Zhu et al., 2018). Business connections and competitor orientation have a negative impact on innovation (Wang and Chung, 2013). As such, the company may adopt innovative strategies by developing activities to gain a competitive advantage (Johnny, 2006). However, those people in a competitive environment exhibit lower creativity than those who collaborate with each other (Bittner and Heidemeier, 2013). Huggins and Clifton (2011) explore the relationship between creativity and competitiveness within the entire urban and

rural framework at the local level, and they reveal that an urban area is stronger than a rural area.

Strengthening the EO of distributors can improve the efficiency of competition and cooperation (Fragoudaki and Giokas, 2020). Thus, positive cooperative activities can help to overcome obstacles upon knowledge transfer (Li et al., 2011) as well as boost knowledge sharing (Lei et al., 2019). Knowledge sharing occurs most often in maintaining the competitive advantage of a family business (Pittino et al., 2018). Argote and Ingram (2000) define that prerequisite to an organizational competitive advantage; knowledge should be difficult for competitors to imitate and should be embedded in employees' interactions to prevent external transfer to competitors. Liu and Lee (2015) proposed the concept of social capital EO through knowledge management, which is essential for competition within an organization. The moderating mechanism and enhancement effect of EO were found in organizational citizenship behavior (OCB) and knowledge sharing relationships (Tuân, 2017). Particularly, knowledge is regarded as the prime resource of the organization's competitive advantage, and storing and protecting knowledge may increase value in the organization (Berry, 2000). Thus, knowledge sharing across an organization will benefit entrepreneurship.

As the literature review references, most scholars have developed the moderating role of competitive intensity in the business environment literature (Kura et al., 2020). Specifically, increasing competitive intensity in new products' innovative ability can strengthen the adaptation of a competitor's innovation and environmental change. By contrast, decreasing competitive intensity may have a negative impact on performance (Johnny, 2006). Indeed, a high level of competitive intensity will moderate EO to improve a firm's marketing capabilities in new product developments; it helps a firm distinguish itself from competitors (Martin and Javalgi, 2016). Competitive intensity influences personal network resources on economic performance rather than institutional network resources, and as the competitive intensity increases, entrepreneurs will benefit from more resources in their personal network (Hernández-Carrión et al., 2017).

Previous discussions suggest that the impact of motivation-creativity and knowledge sharing-motivation depends on the level of competitive intensity. When the competitive intensity is high, motivation will have a positive impact on creativity. In addition, knowledge sharing will have a positive impact on motivation. Thus, competitive intensity is the crucial factor to indicate such a moderation effect. More specifically, we argue that stronger competitive intensity will affect the motivation-creativity path and the knowledge sharing-motivation path. Thus, we derive the following hypotheses for competitive intensity:

Hypothesis 7. Competitive intensity moderates the relationship between motivation and creativity; such a relationship is strengthened when competitive intensity is high.

Hypothesis 8. Competitive intensity moderates the relationship between knowledge sharing and motivation; such a relationship is strengthened when competitive intensity is high.

The above literature develops our theoretical model by defining the main variables of knowledge sharing, motivation, creativity, EO and human capital. The study first conceptualizes knowledge sharing as a critical attribute that can encourage employee motivation and enhance creativity. We then point out employees' creativity as a central mechanism linking knowledge sharing and outcomes of human capital and indirect effects of EO. Specifically, we discussed how competitive intensity related to the process of knowledge sharing influences creativity through motivation. Next, we hypothesize how a cooperative climate moderates the relationship between motivation and creativity.

3. Methods

3.1. Sample and data collection procedures

This study gathered data from airline organizations in China Xiamen Gaoqi International Airport and Quanzhou Jinjiang International Airport from January to February 2019. To examine the proposed hypothesis, this study separated the main constructs into independent, moderating, mediating, and dependent variables and emphasized that the surveys had no right or wrong answers but that it only truly reflected a respondent's own feelings of entrepreneurial orientation and related experience during their work environment. With the common method variance (CMV) concern, single-factor tests were implemented. Values at 40.321% eliminated the CMV problem in the dataset. Specifically, to ensure the contents' reliability and validity, two experts with abundant research experience in related fields of entrepreneurial and business management were invited to correct the readers' measured items that could possibly be unclear and misleading. When the corrected questionnaire was finished, five airline organizations employees were asked to fill in the questions before distribution. When the above two critical steps were finished, we ensured that the questionnaire was appropriate to measure the airline employees' entrepreneurial orientation. In order to increase the response rates and because of specific characteristics, the questionnaire was personally collected. Out of 560 surveys distributed, 505 useable surveys were returned from employees, with a response rate of 90.18%. The basic demographic information for participants is shown in Table 1.

3.2. Variables and measurement

With the survey design, we first comprehensively reviewed business management, entrepreneurial orientation, knowledge management, and strategies of business competitive intensity using the seven-point Likert scale (1 = very strongly disagree and 7 = very strongly agree) to reflect the true perspectives of participants. The main constructs used in this study were as follows. The first construct was knowledge sharing and was operationalized in two dimensions: tacit and explicit knowledge sharing, adapted from Hau et al. (2013). These reflected employees' tacit and explicit knowledge sharing intentions. The second construct was motivation and was operationalized in two dimensions: internal and external motivation. A seven-item scale was adapted from Lin (2007). The third construct was creativity. An eight-item scale was adapted from Horng et al. (2015). Fourth, the construct of human capital was measured with a four-item scale adapted from Nieves and Segarra-Ciprés (2015). The fifth construct of entrepreneurial orientation and the sixth construct of cooperation climate were measured and adapted from Li et al. (2011). The final construct was competitive intensity, which was measured with a five-item scale and was adapted from Wang and Chung (2013). Hence, the research variables and measurement items are shown in Table 2. Further, the basic statistics for measuring constructs is shown in Table 3.

3.3. Measurement reliability and validity

The essential steps for measuring reliability and validity were applied and included construct reliability, convergent validity, and discriminant validity (Götz et al., 2009). First, the standardized loading of all constructs was assessed for significance, with a cutoff level of 0.6 (Bagozzi and Yi, 1985). The mentioned standardized loadings ranged from 0.620 to 0.919, and the convergent validity was accepted. Second, the composite reliabilities (CR) measure was required to be above the threshold of 0.7 and all measures ranged from 0.757 to 0.938. Third, the value of average variance extraction (AVE) by each construct was greater than 0.5 and therefore satisfactory; the smallest AVE was 0.512, and the highest was 0.792. Accordingly, the results indicated that all the constructs included in the hypothesized model indicated adequate

Table 1
Descriptive information of participants (N = 505).

Characteristics	Frequency	Percentage (%)	Characteristics	Frequency	Percentage (%)
Gender			Experience		
Male	274	54.30	5 years or below	116	22.97
Female	231	45.70	6–10 years	138	27.33
Age			11–15 years	61	12.08
30 years or below	123	24.40	16–20 years	54	10.69
31–40 years	192	38.00	21–25 years	56	11.09
41–50 years	158	31.30	26–30 years	53	10.50
51 years or above	32	6.30	31–35 years	27	5.34

reliability and validity.

3.4. Preliminary analysis of confirmatory factor analysis (CFA)

Confirmatory factor analysis (CFA) is most useful for assessing the measurement model (Hau et al., 2013), such as the first and second factor structure, as well as for developing multiple variables associated with the dependent and independent variables. The first factor analysis comprises knowledge sharing, motivation, creativity, human capital and entrepreneurial orientation, and cooperation climate and competitive intensity. The second factor analysis comprises knowledge sharing and motivation. The most popular fit indexes were used to evaluate a hypothesized measurement model fit. These relative fit indices included the chi-square value (X^2), the ratio of the chi-square to the degrees of freedom (X^2/df), the normed-fit index (NFI), the relative fit index (RFI), the incremental fit index (IFI), the Tucker-Lewis index (TLI), the comparative fit index (CFI), and the absolute fit indexes, which included the adjusted goodness-of-fit index (AGFI), the goodness-of-fit index (GFI), and the root mean square error of approximation (RMSEA). The hypothesized measurement should demonstrate good model fit and meet the requirements of fit indexes. Theoretically, a five-factor model was constructed with separate first-order and second-order latent factors, which indicates that the model has a good degree of fit ($X^2=1076.782$; $p < .001$; $X^2/df = 3.726$; NFI = 0.906; RFI = 0.894; IFI = 0.929; TLI = 0.920; CFI = 0.929; AGFI = 0.818, GFI = 0.850 and RMSEA = 0.074). Subsequently, our study provided some solutions for preventing or minimizing the occurrence of common method bias, that is, examining the alternative second-factor model of knowledge sharing; it included the two dimensions of tacit and explicit knowledge sharing ($X^2=63.091$; $p < .001$; $X^2/df = 31.545$; NFI = 0.942; RFI = 0.827; IFI = 0.944; TLI = 0.831; CFI = 0.944; AGFI = 0.705, GFI = 0.705 and RMSEA = 0.246). Furthermore, an examination of alternative second-factor models of motivation included the two dimensions of internal and external motivation ($X^2=484.743$; $p < .001$; $X^2/df = 34.625$; NFI = 0.831; RFI = 0.746; IFI = 0.835; TLI = 0.751; CFI = 0.834; AGFI = 0.523 GFI = 0.761 and RMSEA = 0.258). The use of higher-order factor models should be recommended due to the model fits of second-order factor models, which are poorer than those of first-order factor models, which aim to develop a comprehensive multidimensional framework. Therefore, the unitary construct of knowledge sharing, motivation, creativity, human capital, and entrepreneurial orientation should be utilized to examine the proposed hypothesized model. Hence, the values of goodness-of-fit for hypothesized model and alternative second-factor model were shown in Table 4.

4. Results

The measurements of the constructs are described in Table 5, indicating the means values, standard deviations, scale reliabilities, correlations of each pair of variables, and the square roots of the AVE. Furthermore, we checked the variation inflation factor (VIF) in all empirical tests; it was used to explain the high correlation among predictor variables.

To test the proposed research model, we specified a hypothesized model by using structural equation modeling (SEM) in Fig. 2. SEM is essentially an approach to test hypotheses simultaneously (James and Brett, 1984). An increasing amount of research in the tourism literature uses SEM analysis, and it is considerably more beneficial than traditional statistical techniques (Nunkoo and Ramkissoon, 2012). As Nachtigall et al. (2003) emphasized, “the techniques of Structural Equation Modeling (SEM) represent the future of data analysis.” These techniques comprise various types of statistical procedures, such as multiple regression or factor analysis. We predicted that knowledge sharing indirectly impacts entrepreneurial orientation through motivation, creativity, and human capital (Hypotheses 2, 3, 4 and 5, respectively). Moreover, we predicted in Hypothesis 6 and Hypothesis 7 that the moderating effects of cooperation climate and competitive intensity on motivation are strengthened by creativity. Lastly, we predicted in Hypothesis 8 that the moderating effects of competitive intensity on knowledge sharing is strengthened by motivation. With respect to testing, the proposed hypotheses used SEM through IBM SPSS AMOS (V22), for instance, with direct, indirect, mediating and moderating effects. We then performed the bootstrapping maximum likelihood (ML) method, which corresponded to 1000 bootstrap samples. Further, Monte Carlo tests (parametric bootstrap) were used to calculate bias-corrected confidence intervals. Fig. 2 indicates that the model fits the data adequately ($X^2=1076.782$; $p < .001$; $X^2/df = 3.726$; NFI = 0.906; RFI = 0.894; IFI = 0.929; TLI = 0.920; CFI = 0.929; AGFI = 0.818, GFI = 0.850 and RMSEA = 0.074). Fig. 2 presents that the structural model for the two subdimensions of knowledge sharing (tacit, $\beta = 0.933^{***}$, explicit, $\beta = 0.916^{***}$) are correlated with the two subdimensions of motivation (internal, $\beta = 0.952^{***}$, external, $\beta = 0.719^{***}$). Thus, the results present that the knowledge sharing had a significantly positive impact on motivation ($\beta = 0.831^{***}$, $p < .001$), motivation had a significantly positive impact on creativity ($\beta = 0.784^{***}$, $p < .001$), creativity had a significantly positive impact on human capital ($\beta = 0.626^{***}$, $p < .001$), and human capital had a significantly positive impact on entrepreneurial orientation ($\beta = 0.251^{***}$, $p < .001$). The testing of the hypotheses revealed that knowledge sharing had a significantly positive direct impact on entrepreneurial orientation ($\beta = 0.684^{***}$, $p < .001$), which supports Hypothesis 1. Subsequently, motivation is correlated with creativity, and the average indirect impacts on knowledge sharing and creativity through motivation are statistically significant ($\beta = 0.815^{***}$, $p < .001$), providing initial support for Hypothesis 2. Furthermore, creativity is correlated with human capital, and the average indirect impacts on knowledge sharing and human capital through creativity are statistically significant ($\beta = 0.323^{***}$, $p < .001$), which supports Hypothesis 3. We assume creativity is correlated with human capital, but the average indirect impacts on motivation have no significant impact on human capital through creativity ($\beta = -0.078$, $p > .05$). Thus, Hypothesis 4 is not supported. Finally, human capital is correlated with entrepreneurial orientation, and the average indirect impacts on creativity and entrepreneurial orientation through human capital are statistically significant ($\beta = 0.303^{***}$, $p < .001$). Consequently, the result further supports Hypothesis 5.

We implemented a 95% bias-corrected confidence interval (CI) and a

Table 2
Research variables and measurement items.

Variables		Measurement Items	Reference		
Knowledge sharing	Tacit	Tac1	Hau et al. (2013)		
		Tac2			
	Explicit	Expli4			
		Expli5			
		Inter5			
Motivation	Internal	Inter6	Lin (2007)		
		Inter7			
		External		Exter1	
	Exter2				
	Exter3				
	Exter4				
	Creativity			Creat1	Hornig et al. (2015)
				Creat2	
				Creat4	
		Creat5			
Creat6					
Creat7					
Creat8	I often have a creative approach to problems.				
Creat10		I will develop a new approach for the			

Table 2 (continued)

Variables	Measurement Items	Reference
Human capital	Hum1	Nieves and Segarra-Ciprés (2015)
	Hum2	
	Hum3	
	Hum4	
Entrepreneurial orientation	Entre3	Li et al. (2011)
	Entre4	
	Entre5	
Cooperation climate	Cooper1	Li et al. (2011)
	Cooper2	
	Cooper3	
	Cooper4	
Competitive intensity	Comp2	Wang and Chung (2013)
	Comp3	
	Comp4	

95% CI in the bootstrap method, which was calculated by IBM SPSS AMOS 22.0 software. In this sense, all the values in the confidence interval did not contain zero (as illustrated in Table 6). Overall, the indirect impacts on motivation, creativity, and human capital are significant (as supported by Hypotheses 2 and 3 respectively). By contrast, Hypothesis 4 was not supported due to insignificant results for the indirect impacts on creativity.

Fig. 3 presents the test of the moderating effect of cooperation climate and competitive intensity, which appropriately adjusted for latent variables.

Table 3
Variables of descriptive statistics and confirmatory factor analysis.

Constructs and factors	Mean	SD	Standardized loading	CR	AVE		
Knowledge Sharing							
Tacit							
Tac1	5.26	1.108	.813***	.842	.728		
Tac2	5.28	1.094	.891***				
Explicit							
Expli4	5.48	1.064	.858***	.818	.693		
Expli5	5.32	1.100	.806***				
Motivation							
Internal							
Inter5	5.28	1.027	.861***	.874	.698		
Inter6	5.29	1.067	.850***				
Inter7	5.52	1.000	.793***				
External							
Exter1	5.11	1.230	.891***	.938	.792		
Exter2	5.04	1.280	.919***				
Exter3	5.08	1.208	.887***				
Exter4	5.11	1.130	.860***				
Creativity							
Creat1	5.40	1.056	.793***	.936	.648		
Creat2	5.45	1.030	.817***				
Creat4	5.44	1.016	.821***				
Creat5	5.09	1.093	.786***				
Creat6	5.33	1.066	.745***				
Creat7	5.39	1.054	.816***				
Creat8	5.30	1.048	.831***				
Creat10	5.41	1.067	.826***				
Human Capital							
Hum1	5.17	1.139	.783***			.893	.677
Hum2	4.96	1.183	.852***				
Hum3	5.11	1.117	.814***				
Hum4	4.94	1.146	.840***				
Entrepreneurial Orientation							
Entre3	5.20	1.094	.803***	.893	.736		
Entre4	5.27	1.114	.877***				
Entre5	5.32	1.151	.891***				
Cooperation Climate							
Cooper1	5.52	1.146	.717***	.858	.602		
Cooper2	5.49	1.091	.736***				
Cooper3	5.71	1.098	.863***				
Cooper4	5.54	1.125	.780***				
Competitive Intensity							
Comp2	4.70	1.479	.729***	.757	.512		
Comp3	4.41	1.489	.620***				
Comp4	5.08	1.285	.788***				

Table 4
Preliminary analysis of CFA -Values of goodness-of-fit.

Model	χ^2	χ^2/df	NFI	RFI	IFI	TLI	CFI	AGFI	GFI	RMSEA
Hypothesized model -Five-factor model	1076.782	3.726	.906	.894	.929	.920	.929	.818	.850	.074
Alternative second-factor model of knowledge sharing	63.091	31.545	.942	.827	.944	.831	.944	.705	.705	.246
Alternative second-factor models of motivation	484.743	34.625	.831	.746	.835	.751	.834	.523	.761	.258

Table 5
Means, standard deviation, reliability and distinguishing validity.

Construct	Tac	Expli	Inter	Exter	Creat	Hum	Entre	Cooper	Comp	VIF
Knowledge Sharing										
Tacit (Tac)	(.827)									2.815
Explicit (Expli)	.710**	(.777)								2.533
Motivation										
Internal (Inter)	.611**	.658**	(.835)							3.222
External (Exter)	.487**	.485**	.620**	(.889)						1.882
Creativity (Creat)	.651**	.680**	.801**	.626**	(.806)					3.682
Human Capital (Hum)	.507**	.464**	.515**	.519**	.556**	(.823)				1.711
Entrepreneurial Orientation (Entre)	.714**	.593**	.614**	.530**	.674**	.567**	(.860)			2.583
Cooperation Climate (Cooper)	-.131**	-.092*	-.120**	-.069	-.124**	-.121**	-.126**	(.776)		1.156
Competition Intensity (Comp)	-.018	-.049	.038	.017	.001	-.061	-.041	.331**	(.716)	1.149
Mean Value	5.266	5.402	5.362	5.082	5.350	5.046	5.261	5.566	4.728	
Standard deviation	1.022	.995	.921	1.113	.876	.997	1.017	.933	1.160	

*p < .05, **p < .01, ***p < .001; internal consistency and reliability are shown on the diagonal in bold.

For Hypotheses 6–8, as illustrated in Table 7, it was found that there was a positive interaction between motivation and creativity, whereas the airline organization employees have a better cooperation climate, and the coefficient for the interaction term “motivation*cooperation climate” is significantly positive for airline organization employees’ cooperation climate of value ($\beta = 0.431***$, $p < .001$). Afterwards, we further conducted a slope test with a two-dimensional diagram to examine the interaction effects. With respect to Fig. 4a, the slope was used to describe the interaction effect, in which a higher cooperation climate among airline organization employees increased, with the steepness of motivation and creativity becoming increasingly steeper. Hence, Hypothesis 6 is supported (see Table 8).

Next, there is a positive interaction between motivation and creativity, such that when airline organization employees have higher competitive intensity, the coefficient for the interaction term “motivation*competitive intensity” is significantly positive for airline organization employees’ competitive intensity of value ($\beta = 0.280***$, $p < .001$). As illustrated in Fig. 4b, a simple slope shows that, whereas the competitive intensity is higher (rather than lower), the creativity and motivation of airline organization employees is also higher. Therefore, Hypothesis 7 is supported.

More specifically, the result indicates a positive interaction between knowledge sharing and motivation when the airline organization employees have higher competitive intensity, so the coefficient for the interaction term “knowledge sharing*competitive intensity” is significantly positive for airline organization employees’ competitive intensity of value ($\beta = 0.312***$, $p < .001$). Finally, a simple slopes analysis, as shown in Fig. 4c, demonstrates the interaction effect; as the competitive intensity of airline organization employees increases, the slope of knowledge sharing and motivation becomes steeper. Therefore, Hypothesis 8 is supported. Consequently, these results verify that the relationship of Hypotheses 6, 7, and 8 (with moderator paths) were strengthened.

4.1. Robustness checks

In an analysis of the first-order moderating effect of cooperation climate and competitive intensity, Anderson and Gerbing (1988) suggest that the hypothesized measurement model shall be first tested and then be followed by alternative models with model fit comparison. The study proposed three alternative hypothesized models (Table 8). Alternative hypothesized model 1, separating the factor order of knowledge sharing,

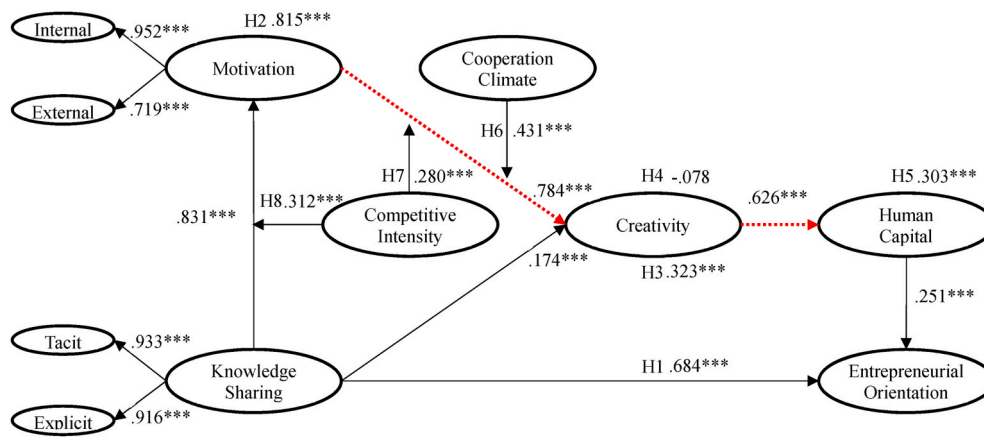


Fig. 2. Conceptual research framework – hypothesized model results.

Table 6

Test of the mediation effect of knowledge sharing on entrepreneurial orientation through motivation, creativity, and human capital.

Hypothesis path	Standard error	Estimates	Bias-corrected 95% CI		Percentile 95% CI		Results
			Lower	Upper	Lower	Upper	
Knowledge sharing → Entrepreneurial orientation		.815	.627	1.051	.628	1.053	Support
H2: Knowledge sharing → Motivation → Creativity	.108	.815	.627	1.051	.628	1.053	Support
H3: Knowledge sharing → Creativity → Human capital	.089	.323	.143	.497	.136	.492	Support
H4: Motivation → Creativity → Human capital	.590	-.078	-1.459	.455	-1.453	.458	Not Support
H5: Creativity → Human Capital → Entrepreneurial orientation	.052	.303	.202	.406	.204	.409	Support

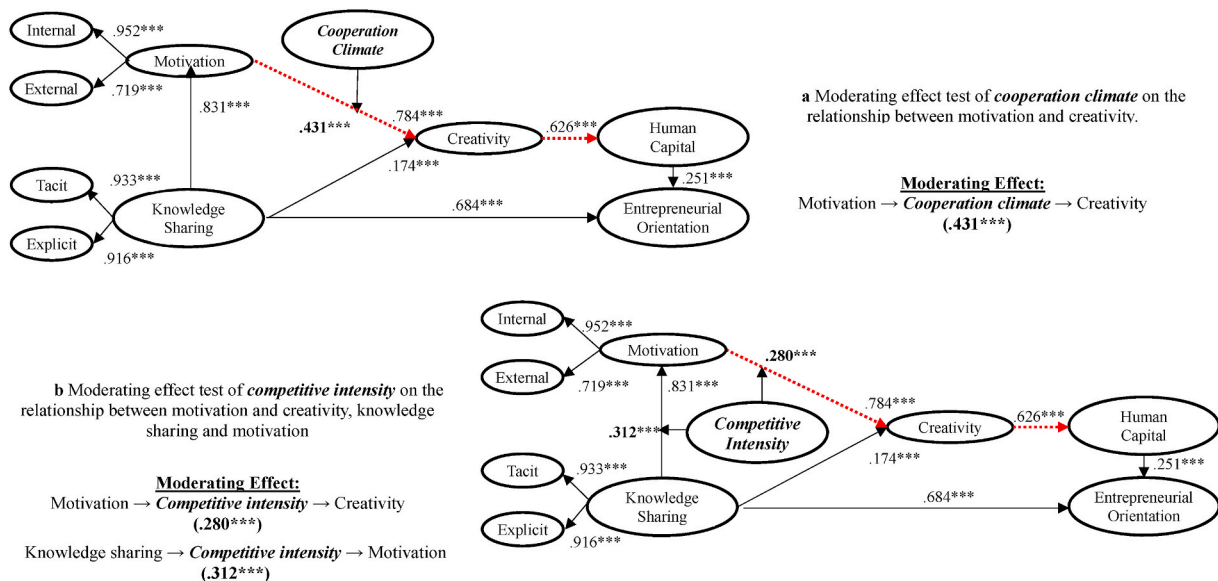


Fig. 3. Test of the moderating effect of cooperation climate on the relationship between (3a) motivation and creativity while the moderating effects of competitive intensity on the relationship between (3b) motivation and creativity, knowledge sharing and motivation were also tested.

includes the two subdimensions (tacit and explicit knowledge sharing). Alternative hypothesized model 2, separating the factor order of motivation, includes the two subdimensions (internal and external motivation). Alternative hypothesized model 3, separating the factor order of knowledge sharing, includes the two subdimensions of tacit and explicit knowledge sharing, while separating motivation, which includes the two subdimensions of internal and external motivation.

First, an alternative hypothesized model 1 was tested. The results in Fig. 5a show that the robustness models were worse than the original model ($X^2=1423.497$; $p < .001$; $X^2/df = 4.493$; NFI = 0.876; RFI = 0.860; IFI = 0.898; TLI = 0.885; CFI = 0.898; AGFI = 0.787; GFI =

0.825 and RMSEA = 0.088). Moreover, tacit knowledge sharing is positively correlated to motivation ($\beta = 0.444***$, $p < .001$), creativity ($\beta = 0.107***$, $p < .001$) and entrepreneurial orientation ($\beta = 0.642***$, $p < .001$), which further indirectly impacts creativity ($\beta = 0.810***$, $p < .001$) through motivation. Explicit knowledge sharing is positively correlated with motivation ($\beta = 0.611***$, $p < .001$), creativity ($\beta = 0.076***$, $p < .001$) and entrepreneurial orientation ($\beta = 0.192***$, $p < .001$). Thus, Hypotheses 1, 2 and 3 are supported.

Second, we examined an alternative hypothesized model 2. Fig. 5b demonstrates that the alternative hypothesized model 2 has a better fit ($X^2=1127.463$; $p < .001$; $X^2/df = 3.901$; NFI = 0.901; RFI = 0.889; IFI

Table 7
Test of the moderating effect of cooperation climate and competition intensity.

Hypothesis path	Standardized path coefficients	Standard error	Results
Moderator: Cooperation climate			
H6: Cooperation Climate → Creativity	-.387***	.037	Support
Motivation → Creativity	.549***	.027	
Motivation * Cooperation Climate → Creativity	.431***	.039	
Moderator: Competition intensity			
H7: Competition intensity → Creativity	-.306***	.043	Support
Motivation → Creativity	.759***	.031	
Motivation * Competition intensity → Creativity	.280***	.052	
H8: Competition intensity → Motivation	-.224***	.031	Support
Knowledge sharing → Motivation	.633***	.040	
Knowledge sharing * Competition intensity → Motivation	.312***	.043	

*p < .05, **p < .01, ***p < .001.

= 0.925; TLI = 0.915; CFI = 0.925; AGFI = 0.812; GFI = 0.845 and RMSEA = 0.076). Furthermore, knowledge sharing is positively correlated with internal motivation ($\beta = 0.835^{***}$, $p < .001$), creativity ($\beta = 0.354^{***}$, $p < .001$), and entrepreneurial orientation ($\beta = 0.697^{***}$, $p < .001$). Knowledge sharing indirectly impacts creativity ($\beta = 0.519^{***}$, $p < .001$) through internal motivation and human capital ($\beta = 0.624^{***}$, $p < .001$) and through creativity. Knowledge sharing is positively correlated with external motivation ($\beta = 0.652^{***}$, $p < .001$) and indirectly impacts creativity ($\beta = 0.109^{***}$, $p < .001$) through external motivation. Hypotheses 1, 2, and 3 are still supported.

Third, we further examined an alternative hypothesized model 3. The results in Fig. 5c show that the robustness models have the poorest results of all models ($X^2=1482.877$; $p < .001$; $X^2/df = 5.167$; NFI = 0.870; RFI = 0.853; IFI = 0.893; TLI = 0.878; CFI = 0.892; AGFI = 0.780; GFI = 0.820 and RMSEA = 0.091). In addition, tacit knowledge sharing is positively correlated with internal motivation ($\beta = 0.380^{***}$, $p < .001$), external motivation ($\beta = 0.347^{***}$, $p < .001$), creativity ($\beta = 0.195^{***}$, $p < .001$), and entrepreneurial orientation ($\beta = 0.653^{***}$, $p < .001$) and indirectly impacts creativity ($\beta = 0.577^{***}$, $p < .001$) through

internal motivation, creativity ($\beta = 0.148^{***}$, $p < .001$) through external motivation, and human capital ($\beta = 0.571^{***}$, $p < .001$) through creativity. Explicit knowledge sharing is positively correlated with internal motivation ($\beta = 0.658^{***}$, $p < .001$), external motivation ($\beta = 0.415^{***}$, $p < .001$), creativity ($\beta = 0.177^{***}$, $p < .001$), and entrepreneurial orientation ($\beta = 0.209^{***}$, $p < .001$). In this sense, Hypotheses 1, 2, and 3 are still supported. Overall, compared to all three alternative hypothesis models, the original hypothesized model is the best model to fit with this research.

5. Discussion and conclusions

In our research, we have sought to respond to several research questions related to how knowledge sharing affects EO through motivation, creativity, and human capital. In addition, we explored how the cooperation-competition mechanism moderates knowledge sharing, motivation, and creativity. Accordingly, our study defined tacit and explicit knowledge sharing. Furthermore, we also linked these dimensions with motivation for internal and external airline employees.

Data from a sample of 505 airline employees was collected to confirm the proposed conceptual research framework. First, the study has confirmed that knowledge sharing can positively directly affect EO. Thus, higher knowledge sharing will enable stronger EO. Second, this study further explores how knowledge sharing affects employees' EO by constructing a mediating model of motivation, creativity, and human capital. We delve deeper into how knowledge sharing influences employees' EO outcomes, such as increasing motivation, further boosting creativity, and enhancing human capital. However, as noted previously, human capital does not show a mediating effect between motivation and human capital. It reveals that human capital is affected by creativity through knowledge sharing rather than motivation. In addition, the results also suggest knowledge sharing can simultaneously increase creativity and human capital, thereby increasing EO. Lastly, the cooperation-competition mechanism, creating a harmonious cooperation climate and a stronger competitive intensity within airline organizations, played an extremely important moderating role in EO development by strengthening the relationship among knowledge sharing, motivation, and creativity.

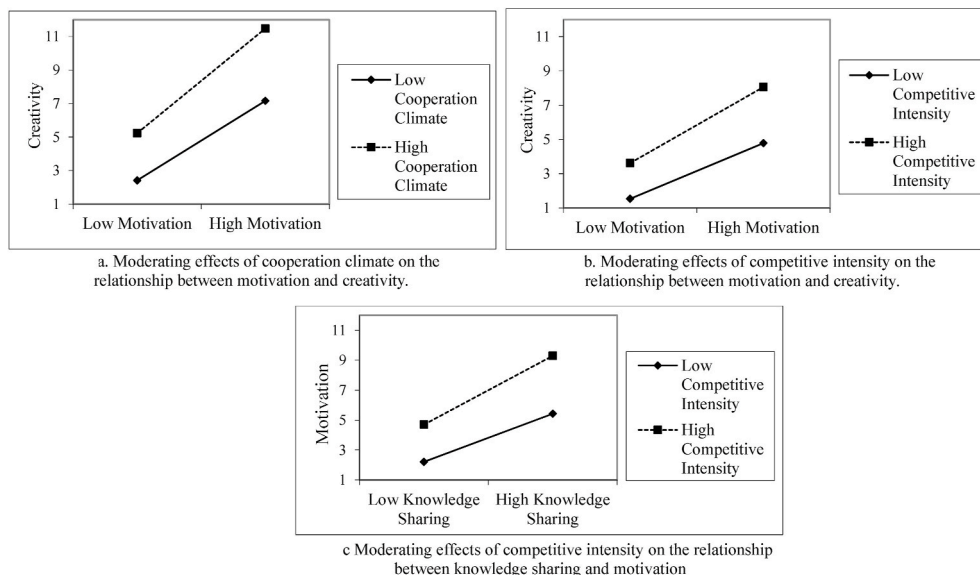


Fig. 4. Moderating effects of cooperation climate on the relationship between (4a) motivation and creativity while the moderating effects of competitive intensity on the relationship between (4b) motivation and creativity and (4c) knowledge sharing and motivation were also examined.

Table 8
Values of model fit indexes, indirect effect and direct effects of the alternative models.

Alternative model	1	2	3			
χ^2	1423.497	1127.463	1482.877			
χ^2/df	4.493	3.901	5.167			
NFI	.876	.901	.870			
RFI	.860	.889	.853			
IFI	.898	.925	.893			
TLI	.885	.915	.878			
CFI	.898	.925	.892			
AGFI	.787	.812	.780			
GFI	.825	.845	.820			
RMSEA	.088	.076	.091			
Indirect effect	Tacit→ Motivation→ Creativity	.360 ***	Internal→ Creativity→ Human capital	.250 ***	Tacit→ Internal→ Creativity	.219 ***
	Explicit→ Motivation→ Creativity	.495 ***	External→ Creativity→ Human capital	.306 ***	Tacit→ External→ Creativity	.051 ***
	Tacit→ Creativity→ Human capital	.270 ***	Knowledge sharing→ Internal→ Creativity	.433 ***	Explicit→ Internal→ Creativity	.380 ***
	Explicit→ Creativity→ Human capital	.329 ***	Knowledge sharing→ External→ Creativity	.071 ***	Explicit→ External→ Creativity	.061 ***
Direct effect		Knowledge sharing→ Entrepreneurial orientation	.684 ***			

*p < .05, **p < .01, ***p < .001.

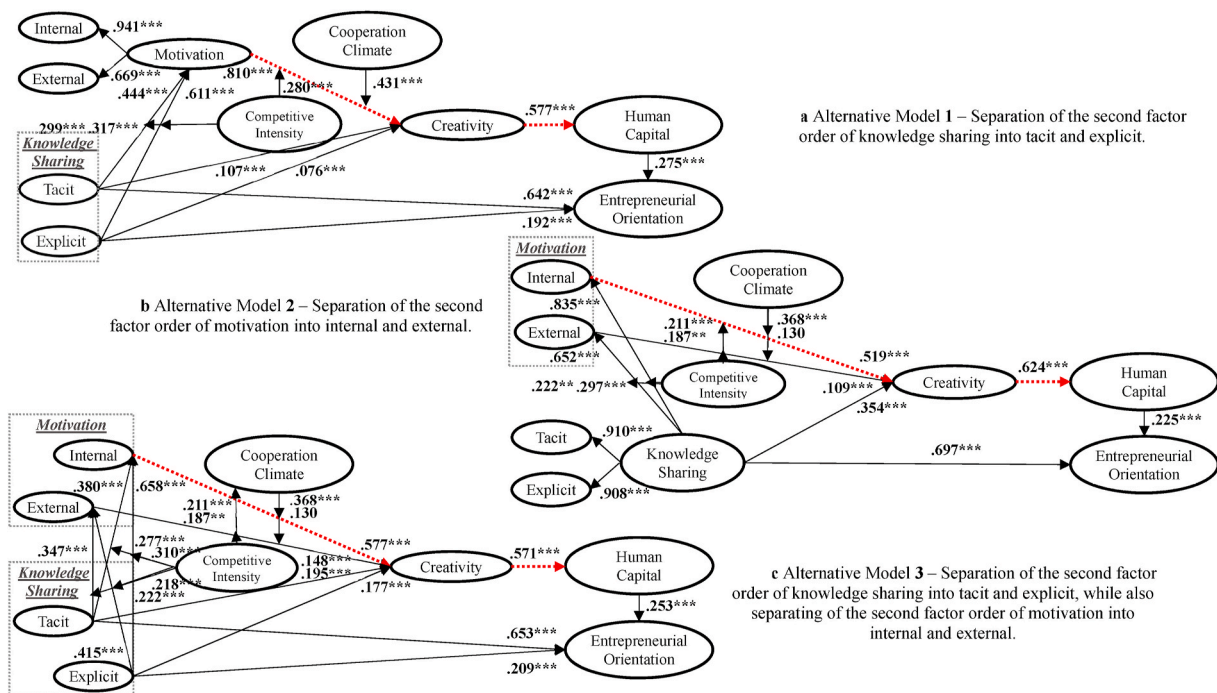


Fig. 5. Alternative model for transforming the second-order factors into the first-order factors of knowledge sharing and motivation.

5.1. Managerial implications

In practice, several managerial implications have been discussed to determine the success of airline employees' EO under a cooperation-competition mechanism. First, our study suggests that building mutual trust among airline employees, as a knowledge sharing intention, not only depends on individual initiative but also represents the intrinsic value of an organization (Pittino et al., 2018). Thus, an effective knowledge sharing culture is important within the organization (Lin,

2007; King and Marks Jr., 2008; Farooq and Vij, 2018). For example, management may consider establishing team-building activities to strengthen employer-employee relationships. Through these team-building activities, it may break the gap among employees and improve interaction through the collaborative game. As interaction and collaboration increase, the organization may improve relationships and enhance trust. Management should be aware that insufficient trust may lead to reluctance to share knowledge, and these activities may help to cultivate employees' implicit and tacit knowledge sharing (Lei et al.,

2019). In line with this, we believe that when the relationship between employees improves, the learning and cooperation climate within an organization will strengthen the willingness to share knowledge in the workplace (Ghafoor et al., 2017), and employees' emotional and effective commitment to the organization will ultimately stimulate entrepreneurial outcomes (Pittino et al., 2018), thereby promoting EO.

Second, creativity acts as a multi-role throughout the formation of EO, so we suggest making the best possible use of creativity under the cooperation-competition mechanism within airline employees, as it is an essential element in entrepreneurship activities (Sadeghi and Esteki, 2010). The results show the intermediate roles of creativity that provide a link among motivation, knowledge sharing and human capital. In a real workplace environment, cooperation and competition may coexist between employees (King et al., 2020). However, incorporating collective creativity in the working atmosphere reduces the pressure of competition and implementing more cooperation mechanisms strengthens the effect of information sharing and new idea generation (Ye et al., 2020). Senbeto and Hon (2020) asserted that more cooperation and less competition will encourage employees' creative abilities, which may be an effective business competition strategy that can enable firms to overcome dynamic environments and cope with changeable customer needs. Therefore, the manager, who represents the management of airline organizations, should develop an effective incentive mechanism among peers to facilitate stronger learning motivation and improve creativity to develop employees' capabilities and improve the human resources development process. Management may design periodic group activities among employees, such as arranging a high-creative and low-creative employee in one group, paying attention to the cooperation between two employees during the activities. While cooperation could enhance employees' creativity and performance (Xue et al., 2018), we hope to complement each other's creative deficiencies through cooperation. In addition to enhancing the close relationship between employees, the sense of common participation and positive friendship in cooperation can also strengthen each other. Furthermore, management may maximize their ability to develop entrepreneurial strategies by promoting knowledge sharing (Hormiga et al., 2017), which can help to promote employees' EO.

Third, since EO is frequently used for guidance of strategic, decision-making, and business engagements (Al-Dhaafri and Alosani, 2020), managers should understand the importance of EO towards airline employees. We recommend that airline management concentrate on individual airline leaders' EO outcome by encouraging airline leaders to provide innovative ideas rather than provide solutions to problems. Additionally, we recommend that management routines employ a participatory approach rather than an imperative command (Taheri et al., 2019). The awareness of authentic leadership will enhance employees' trust and strengthen the relationship between each other (Qiu et al., 2019). Hence, airline management should help employees implement difficult practices during the process of entrepreneurship development.

5.2. Theoretical implications

Regarding theoretical contributions, our study extends the tourism and hospitality literature by identifying EO development. Our findings respond with the research questions: "How can cooperation-competition mechanism influence the EO development of airline employees?" and "How can knowledge sharing affect EO within airline organizations?" The study has validated the importance of EO and confirmed the moderating roles of a cooperation-competition mechanism towards the formation of airline employees' entrepreneurship.

First, the theoretical implication assumes a causal link between knowledge sharing and EO. We examine the direct link between knowledge sharing and EO for entrepreneurship development within airline organizations. Our results extend the study of De Clercq et al. (2013), who proposed only that internal knowledge sharing affects

stronger EO. Weerakoon et al. (2020) also used knowledge creation theory to demonstrate the direct relationships between knowledge sharing and EO. However, the other alternative results of its mediating or moderating effects were not considered. The current study divided the knowledge sharing dimension into tacit and explicit knowledge sharing and discussed how it may be related to EO via mediation and moderation effects. Knowledge sharing is one of the direct predictive indicators of employees' EO (Pittino et al., 2017).

Second, the results contribute to the growing body of literature on the regulatory effect of knowledge sharing, motivation, creativity, human capital and EO; it implies that knowledge sharing is likely to have a stronger effect on employees' human capital through creativity rather than motivation. In addition, previous studies on the airline industry have focused on the level of cooperation (Cui and Li, 2020) or competition (Babić & Kalić, 2018; Belobaba and Wilson, 1997; Bush and Starkie, 2014). Fewer studies have incorporated a cooperative climate and competitive intensity and demonstrated how these factors affect employees' motivation and creativity. We confirmed that the adoption of a cooperation-competition mechanism is an appropriate approach to the process of enhancing employees' EO development (Li et al., 2011). Hence, the current research attempts to test the overall impact of those variables on the process of airline employees' EO development, such as knowledge sharing, motivation, creativity, and human capital; it enables bridging the existing gap in the body of knowledge (Al-Dhaafri and Alosani, 2020).

Third, our study extends the research of Hong et al. (2014) with further investigation on the mediating-moderating effect on the relationships between creativity and other outcome measurements. We introduced a cooperation-competition mechanism to explain the relationship between knowledge sharing, motivation, and creativity, which provides a new finding that the employee's creativity can be stimulated in a cooperation-competition mechanism circumstance. The effects of airline employees' knowledge sharing on motivation and motivation on creativity are conditional with the degrees of competitive intensity; they extend our understanding of executing competitive intensity in a moderating role (Sahi et al., 2019). This was achieved by how an airline company forms a higher cooperation climate and demonstrates stronger competitive intensity through the influence of employees' creativity.

5.3. Limitations and suggestions for future research

This study has the following limitations, which may be addressed and overcome by future research. First, the limitation relates to the measurement of EO. The fallout of the present research is based on an EO single construct; hence, the researcher is not able to find out a possible answer regarding which EO dimensions are affected by knowledge sharing. Future research should be undertaken to explore the effect of five key dimensions of EO on airline employees towards entrepreneurial development. Second, there is a limitation regarding the data collection. The study only considered the airline employees from five airline organizations, two of which were Xiamen Gaoqi International Airport and Quanzhou Jinjiang International Airport. As the data is gathered from one province (Fujian Province, China), despite both being major international airports in Fujian Province, this results in a low generalizability (Ghafoor et al., 2017). Thus, it is suggested to research airline organizations from major airports in multiple provinces, which may increase generalizability of the findings (Chen et al., 2019). Third, this study adopted a cross-sectional design for data collection; however, longitudinal research design is suggested to prove its contingency, in which continuous measures can be tested during a specific longer period rather than a specific limited time (Kmieciak and Michna, 2018).

5.4. Conclusion

In conclusion, our findings have shown the importance of a cooperation-competition mechanism in airline employees' EO

development. By adopting an integrated viewpoint regarding the concepts of airline employees' creativity and EO that focuses on what an individual can do relative to what an individual is willing to do, our paper provides different insights based on previous studies on how employee knowledge sharing influences competitive and cooperative behavior among airline employers and colleagues. We provide preliminary evidence of the role of knowledge sharing in facilitating motivation, creativity, and human capital in airline organizations, which can lead to employees' EO. Management from the airline organization can potentially provide an effective and appropriate way to guide their employees towards successful entrepreneurial orientation under cooperative circumstances. The study further enriches the creativity and EO theories of uniqueness and identification by revealing the creativity behavioural consequences of the exclusivity of identities and by suggesting that increasing the level of human capital may trigger an increase in EO.

Author statement of contribution

The Author Contribution page requires authors to indicate which author contributes to which part of the research.

The author Chih-Hsing Liu contributes to this research including the idea generation, research design, data collection, and author Hsiou-Hsiang Jack Liu and Yen-Ling Ng contributes to this research including the statistical analysis, writing the main contexts and response to reviewers.

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