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A meta-analytic study on the organisational learning–performance relationships via country cultural and economic contexts

ABSTRACT

This study aims to further examine organisational learning–organisational performance relationships, with particular emphasis on the moderating effects of contextual elements, such as national culture and economy, on these relationships. Following a seven-step meta-analysis approach, the aggregated findings from 45 previous studies were analysed. The research findings reveal that organisational learning is positively associated with the financial, non-financial and overall performance of organisations. National culture and economy are critical moderators that affect organisational learning–organisational performance relationships. Organisational learning–non-financial performance relationship is stronger in societies that are characterised by large power distance and collectivism. Organisational learning impacts financial performance more strongly in long-term-oriented cultures, and overall performance in restrained cultures. The organisational learning–non-financial performance relationship is stronger in developing economies than in developed economies.

This is one of the first meta-analytic studies to allow significant theoretical generalisability by clarifying ambiguous relationships between organisational learning and its outcomes as well as revealing the moderating impacts of contextual factors (national culture and economy) on the organisational learning–organisational performance relationships. This research enables practising

managers to be aware of the importance of organisational learning and obtain knowledge on handling organisational learning issues in different contexts.

KEYWORDS

Organisational learning, organisational performance, financial and non-financial performance, meta-analysis, knowledge management, national culture,

1. Introduction

Knowledge management (KM) is important for the performance of people and organisations (Kosklin et al., 2022, Liu, Farzad, et al., 2022), which conceptually absorbs organisational learning (OL) in the literature (Castaneda et al., 2018) because KM and OL have identical underlying concepts and aim to solve similar issues (Easterby-Smith et al., 2000). In many KM studies, OL is depicted as a widely applied KM practice (Heisig, 2009; Hussinki et al., 2017), comprised of several KM activities, including knowledge creation, acquisition, transferring and retention (Argote et al., 2021). According to a knowledge-based view (Grant, 1996), OL with such KM activities can produce positive outcomes (Argote et al., 2021), such as sales growth, profitability, product quality, customer satisfaction, company reputation (Oh, 2019), innovation (Jiang et al., 2021), and Covid-19 containment (Gang Liu et al., 2022a). In line with this theoretical premise, many scholars have tested the relationship between OL and organisational performance (OP) empirically. However, empirical evidence has been inconclusive and both significant (e.g., Ruiz-Mercader et al. (2006) and insignificant (e.g., Khan et al. (2015)) OL-OP relationships have been found. Because of the inconclusive empirical findings, a comprehensive understanding of the relationship between OL and OP continues to be missing, leading to low generalisability of the OL-OP relationship in the literature.

The meta-analysis method can be applied to fill this gap by providing a more powerful effect size for the mixed relationships based on earlier studies (Hempel, 2020). While some meta-analysis studies have addressed learning-performance issues, such as that by Goh et al. (2012), who examine the link between learning capability and (non-)financial performance, these scholarly works have neglected the impacts of contexts on the relations. In addition, Ju et al. (2021) meta-analysed learning organisation-performance relationships and these relationships in different

national cultural settings. Current meta-analyses in the KM literature have also tended to focus on the relationships between other KM practices, such as knowledge-friendly organisational culture (Liu et al., 2021), strategic KM (Liu et al., 2020), KM leadership (Gang Liu et al., 2022c) and KM technologies and OP. However, none has sought to gain an overall understanding of OL–OP relationships, especially from a KM perspective (Liu et al., 2021). Moreover, while learning is a culturally conditioned social activity (Hofstede et al., 2010) and affected by context (Argote et al., 2021), studies of OL in different contexts, such as national cultures and economies, are scarce (G. Liu et al., 2022b). In particular, the impacts of such regional contextual factors on OL–OP relationships remain unknown.

To redress this imbalance, this study attempts to synthesise these relationships using a meta-analysis approach to expand knowledge on OL and its benefits as well as to explore the role of contexts in OL–OP relationships. By using a meta-analytical method, this research makes the following contributions to the literature. First, to the best of our knowledge, this is the first meta-analytic study to focus on OL–OP relationships and examine the impacts of contextual factors on these relationships. Second, it enriches KM theory by revealing the consolidated strength of the relation between OL and OP, which resolves disputes on OL–OP relationships (inconclusive and both significant (e.g., Ruiz-Mercader et al. (2006) and insignificant (e.g., Khan et al. (2015)) OL–OP relationships) and reduces heterogeneities in the literature. Third, the study highlights the role of national culture and economy on OL–OP relationships for the first time. The findings represent theoretical contributions to the discussion about context issues in KM by providing additional evidence for whether, how and why national culture and economy do (or do not) moderate OL–OP relationships.

2. Literature review and research questions

2.1 OL and OP

OL refers to a “dynamic learning process for knowledge creation, acquisition and integration, aimed at developing resources and capabilities that contribute to better OP” (Pérez López et al., 2005, p. 228). Such resources and capabilities cannot be developed without continuous training (Maiga et al., 2013) and learning commitments (Baker & Sinkula, 1999; García-Morales et al., 2008). Therefore, in this study, we define OL *as a dynamic learning process for creating, acquiring and integrating knowledge to develop resources and capabilities that can lead to better OP with a commitment to continuous training and learning.* (

We follow Liu et al. (2021) in dividing OP into the three following categories: financial performance (FP), non-financial performance (NFP) and overall organisational performance (OOP). Typical indicators used to measure FP include return on investment, profitability, sales growth, cash flow, return on equity and market share (Hitt & Brynjolfsson, 1996). Non-monetary indicators often used to measure NFP include cost reduction, time to market, stakeholder satisfaction, employee development, organisational reputation, and research and development (Abdel-Maksoud et al., 2005), while OOP comprises a set of financial and non-financial measures used to assess a firm’s overall operation and development status.

A wide body of literature has examined the link between OL and OP (Elkjaer, 2021), but the findings remain nebulous. For instance, based on a survey of Spanish financial advisors, Rodríguez Antón et al. (2016) reported that no direct link exists between OL and OP. Investigating firms in Pakistan, Khan et al. (2015) indicated that the correlation between OL and OOP was insignificant. Similarly, Shih et al. (2009) and Lin et al. (2013) found an insignificant relationship between OL

and the FP of firms. Such findings demonstrating that OL brings no performance benefits to the focal organisation can be explained in several ways. First, OL needs time to transform knowledge into an organisational competitive edge; as most previous studies have been cross-sectional, the value of OL may not have materialised in time for the data collection. Second, firms may lack the capability to align OL with organisational outcomes. Third, the translation of individual learning into organisational-level learning may fail (Crossan et al., 1995). For example, employees may learn skills that they do not need for their current jobs, which, therefore, cannot directly benefit the organisation.

In contrast, most studies have maintained that OL is positively related to FP (Bueno et al., 2010; Feng et al., 2014; Forés & Camisón, 2011; García-Morales et al., 2008; García-Morales et al., 2007; Inkinen & Kianto, 2014; Lee & Huang, 2012; Lee & Lee, 2007; Li et al., 2011; Maiga et al., 2013; Pett & Wolff, 2016; Rhodes et al., 2008; Roxas et al., 2014; Sirén et al., 2012), NFP (Lee et al., 2012; Lee & Lee, 2007; Maiga et al., 2013; Ngah et al., 2016; Salge & Vera, 2013) and OOP (Chien & Tsai, 2012; Choe, 2016; Hu, 2013; Hussain et al., 2018; Kharabsheh et al., 2014; Kim et al., 2010; Lin et al., 2013; Noruzy et al., 2013; Rao et al., 2015; Real et al., 2014; Ruiz-Mercader et al., 2006). These findings can be explained as follows. First, OL emphasises KM activities (Argote et al., 2021), such as creating, acquiring, transferring and integrating knowledge. According to knowledge-based theory, firms can produce benefits once they can successfully create and integrate knowledge (Grant, 1997). Second, following the resource-based view of a firm, by learning what their competitors do not know and thus gaining unique knowledge, organisations can obtain competitive advantages (Barney, 1991). Third, OL equips employees with the necessary skills and know-how to achieve better performance when learning aligns with the firm's goals.

While it is possible to explain the contradictory empirical evidence surrounding OL–OP relationships, these controversial findings hinder the theoretical development of OL because they do not provide a clear basis for understanding OL–OP relationships. Therefore, the first question of this research is as follows: What is the relationship between OL and OP (FP, NFP and OOP)?

2.2 OL in different national contexts

As a contingent factor, context plays a critical role in the learning process as learning always occurs in a context (Argote & Miron-Spektor, 2011). National culture and economy are typical contextual issues that impact OL of firms (G. Liu et al., 2022b). Therefore, national culture and economy are selected as moderators to analyse OL–OP relationships for the following reasons: first, OL is affected by national culture (Easterby-Smith, 1997); second, national economy affects people's education levels and learning behaviours; and, third, understandings of the moderating impacts of national culture and economy on OL–OP relationships have received little attention in the literature (Liu et al., 2021).

National culture can be described as the collective coding of the minds of a nation's people in a way that differentiates them from the people of other nations (Hofstede et al., 2010). Hofstede et al. (2010) propose a framework including six dimensions – power distance (PD), individualism versus collectivism (IC), masculinity versus femininity (MF), uncertainty avoidance (UA), long-term orientated versus short-term orientated (LS) culture, and indulgence-oriented versus restraint-oriented (IR) culture– to analyse the differences in national cultures. National culture significantly influences OL (Easterby-Smith, 1997); for example, in collective societies, employees are associated with each other via in-groups, and learning is particularly active within these groups, while in individualistic societies, employees favour learning by themselves (Furner et al., 2009).

Moreover, national culture affects gender inequality in organisations. Research has found that women are paid less (Gagliardi et al., 2021) and have fewer learning opportunities than men in many organisations (Johansson and Abrahamsson, 2018). Such inequality is strengthened in masculine societies that view men as more powerful than women, while men and women have access to more equal job and learning opportunities in feminine societies (Hofstede, 2011). In strong uncertainty avoidance regions, people prefer structured lectures and seek specific answers, while in weak uncertainty avoidance regions, people favour open-ended learning and discussion (Furner et al., 2009). The importance of learning is particularly embedded in long-term-oriented societies (Hofstede et al., 2010), with more people believing that the payoffs of learning can be materialised later in long-term orientation societies than in short-term orientation societies. People in indulgence-oriented societies often lack a commitment to learning (Hofstede et al., 2010) and are less likely to enrol in online courses than those in restrained societies (Gómez-Rey et al., 2016).

Although the studies outlined above suggest that national culture strengthens or weakens learning behaviour, it remains unclear whether national culture has an impact on OL–OP relationships. For example, does OL tend to be more valuable in individualistic cultures than in collective cultures, or does it lead to more non-financial benefits in long-term orientation rather than short-term orientation surroundings? Therefore, the second research question is as follows: Does national culture moderate the relationships between OL and OP (FP, NFP and OOP)?

In addition to national culture, another important contextual factor is the state of the national economy. A typical categorisation used for national-level economies is the distinction between developed and developing economies. The first refers to countries with a high level of economic condition development, including a relatively high gross domestic product per person and low

unemployment rate, while the second refers to countries (regions) with a relatively less developed economic condition and low gross domestic product per person. As the education systems are more advanced in developed than in developing economies, a higher percentage of people are well educated. As there is a higher portion of literate employees who have been trained in how to learn since childhood, it seems likely that it would be easier to deploy OL in developed economies than in developing economies. Therefore, it is reasonable to expect OL to be more effective in developed economies than in developing economies. However, there is no empirical evidence to indicate whether firms in developed economies reap the benefits of OL better than those in developing economies.. Hence, the third research question is as follows: Does national economy moderate the relationships between OL and OP (FP, NFP and OOP)?

3. Methodology and implementation

3.1 Meta-analysis

Meta-analysis involves the statistical test of a huge number of quantitative results from numerous single studies to integrate the findings (Hartung et al., 2008; Hempel, 2020) by fixing the biases and errors of single empirical studies (Schmidt & Hunter, 2015). This approach is widely applied in educational, medical and social sciences (Cheung, 2015). As the current research tries to assess the relation between OL and OP across empirical individual studies, a meta-analysis method was applied to integrate the empirical evidence of the earlier studies. Group moderating analysis (Noel & Todd, 2012) was also adopted to test whether these moderators are associated with effect sizes of the relations in this study. We follow the seven steps proposed by Cooper (2017) to conduct this study, as shown in Table 1.

Table 1: Research procedures and implementation

<Please insert Table 1 here>

3.2 Variables coding

3.2.1 Main variables

OL

This work defines OL as a dynamic learning process for creating, acquiring and integrating knowledge to develop resources and capabilities that can lead to better OP with a commitment to continuous training and learning. Therefore, measurements of OL concerning knowledge acquisition (Hughes et al., 2008; Li et al., 2011; Noruzy et al., 2013; Shih et al., 2009; Tsang, 2020), knowledge integration (Rhodes et al., 2008), learning (Chien & Tsai, 2012; Gantasala et al., 2010; Huang et al., 2010; Lin et al., 2013), commitment (Baker & Sinkula, 1999a; Baker & Sinkula, 1999b; Feng et al., 2014; Hu, 2013; Hussain et al., 2018; Kharabsheh et al., 2014; Pett & Wolff, 2016) and training (Lee & Lee, 2007; Maiga et al., 2013; Sharabati et al., 2010) were included in this study.

OP

FP, NFP and OOP were labelled as 'FP', 'NFP' and 'OOP', respectively.

3.2.2 Moderators

The moderators 'national culture' and 'economy' were coded following Liu et al. (2021), as discussed below.

National cultures: The national culture framework of Hofstede (2001; Hofstede et al., 2010) provides the best-known paradigm for understanding and explaining major disparities in cross-cultural studies on management challenges (Kirkman et al., 2006). Despite criticism (McSweeney, 2013; Minkov, 2018), Hofstede's national culture epistemology remains an effective and valid

framework for understanding major variances between national cultures (Kaba & Osei-Bryson, 2013), particularly in empirical studies (Beugelsdijk et al., 2017), Duan et al. (2021), and Liu et al. (2021).

The six dimensions of the national culture framework by Hofstede et al. (2010) – namely, power distance (PD), individualism versus collectivism (IC), masculinity versus femininity (MF), uncertainty avoidance (UA), long-term orientated versus short-term orientated (LS) culture and indulgent versus restrained (IR) culture – were coded. The coding was conducted using a threshold value, which was the value closest to the average value of each cultural dimension of the region where the data for the research were obtained (Liu et al., 2021). Two categories were formulated by contrasting value of each nation's (or region's) with the value of threshold. For example, the mean value of PD is 64.59, so 66 was selected as the threshold value as value of 66 of PD is the closest to 64.59. Then, if the value of PD is more than 66 (included), the region was marked as 'L', which means the PD in this region is large. The others (less than 66) are marked as 'S', which means the PD is comparatively small in these regions. Other dimensions of national culture, such as IC (individualism > 38, collectivism ≤ 38), MF (masculinity > 47, femininity ≤ 47), UA (strong UA ≥ 65, weak UA < 65), LS (long-term > 41, short-term ≤ 41), IR (indulgence ≥ 48, restrained < 48), were coded in a similar way (Classification details can be found on page 113 of Liu (2021)).

Economies: Developed economies, economies in transition and developing economies are three general groups applied to show the economic development of countries (regions) (United Nations, 2018). Based on the geographic locations where the surveys were implemented, the economy was coded as 'developing versus transition versus developed'. The national economy codification

followed the *World Economic Situation and Prospects 2018* released by the United Nations (2018).

3.3 Searching strategy and results

To address the research questions of this research, the Scopus database was adopted to find studies because more papers and journals are included in this database than in Web of Science. As Cooper (1998) has highlighted, paper selection standards are crucial to implementing meta-analysis. In this study, *knowledge management* and *performance* were applied to target studies from 1975 to 2018¹ with these words in the title, abstract or keywords for the following reasons: first, OL is a KM practice (Heisig, 2009; Hussinki et al., 2017) comprised of KM activities (Argote et al., 2021), such as knowledge creation, acquisition and integration; second, OL and KM are merging (Castaneda et al., 2018), which motivated us to examine OL from a KM perspective. After examining 32,496 papers in the Scopus database, 45 studies concerning OL and OP were chosen for the coding processes. Table 2 shows the selection procedures and criteria in detail.

Table 2: Selection procedures & criteria

<Please insert Table 2 here>

3.4 Information collecting and coding procedures

The authors had rounds of discussions about the data coding details, agreeing on the list of needed items to code and the processes. In the first step, OL and OP were coded, including names of authors, correlation coefficient (other indicators were calculated to correlation coefficients when possible; see Appendix A for transformation method in detail), sample size, geographic locations of collected data, measurement of OL and OP. In the second step, the studies' quality was re-

¹ the term 'knowledge management' first appeared in academic publications in 1975 (Serenko and Bontis, 2004) and the paper selection was carried out in 2018.

evaluated to see if they were suitable for inclusion in the meta-analysis (e.g., appropriateness of measurements and effect sizes). In the third step, each moderator was given a value. (For final coding information, see Appendix B.)

4. Results

The first research question of this paper is about the relationship between OL and OP (FP, NFP and OOP). To answer this question, it was found that OL was positively related to OOP ($r = 0.454$, 95% confidence interval [CI]: 0.341, 0.554, $Z\text{-value} = 7.150$, $p < 0.001$), FP ($r = 0.278$, 95% CI: 0.197, 0.355, $Z\text{-value} = 6.484$, $p < 0.001$) and NFP ($r = 0.472$, 95% CI: 0.235, 0.655, $Z\text{-value} = 3.685$, $p = 0.000 < 0.001$), as shown in Table 3.

Table 3: Main effects of OL–OP relationships

<Please insert Table 3 here>

The second research question is about the moderating effects of national culture on the relationships between OL and OP (FP, NFP and OOP). To provide an answer to this question, Tables 4, 5 and 6 demonstrate the moderator tests for the impact of OL on categories of OP. The results show that several dimensions of national culture significantly impacted these relationships. First, the OL–NFP relationship is stronger in large PD regions than in small PD regions ($Q_{\text{between}}: 8.570$; $df(Q):1$; $p\text{-value}: 0.003^{**} < 0.01$) as well as in collective societies than in individualistic societies ($Q_{\text{between}}: 5.275$; $df(Q):1$; $p\text{-value}: 0.022^* < 0.1$). Second, the OL–FP relationship was stronger in long-term-oriented societies than in short-term-oriented societies, supported by significant categorical comparisons ($Q_{\text{between}}: 2.860$; $df(Q):1$; $p\text{-value}: 0.091^* < 0.1$). Third, some remarkable findings that emerged from this study were that the overall effect size was larger in restrained cultures than in indulgence-oriented cultures for the links between OL and OOP

($Q_{\text{between}}: 5.823; df(Q):1; p\text{-value}: 0.016^* < 0.1$), FP ($Q_{\text{between}}: 4.259; df(Q):1; p\text{-value}: 0.039^* < 0.1$) and NFP ($Q_{\text{between}}: 10.643; df(Q):1; p\text{-value}: 0.001^{**} < 0.01$), respectively.

Table 4: Categorical moderator test of national culture (OL–OOP relationship)^[1]

<Please insert Table 4 here>

Table 5: Categorical moderator test of national culture (OL–FP relationship)

<Please insert Table 5 here>

Table 6: Categorical moderator test of national culture (OL–NFP relationship)

<Please insert Table 6 here>

The third research question is about the moderating effects of the national economy on the relationships between OL and OP (FP, NFP and OOP). Regarding this research question, the OL–NFP relationship ($Q_{\text{between}}: 18.195; df(Q):2; p\text{-value}: 0.000^{***} < 0.001$) was stronger in developing economies than in developed economies, as shown in Table 7. (The insignificant empirical results, see Appendix E).

Table 7: Categorical moderator test of economies (OL–NFP relationship)

<Please insert Table 7 here>

5. Discussion and conclusion

5.1 Discussion

Significantly positive overall effect size of the OL–OOP relationship (0.454), the OL–FP relationship (0.278), and the OL–NFP relationship (0.472) were found in this research. Such findings are consistent with some earlier studies regarding the OL–OOP relationship (Chien and Tsai, 2012; Choe, 2016; Hussain et al., 2018; Hu, 2013; Kharabsheh et al., 2014; Kim et al., 2010; Lin et al., 2013; Noruzy et al., 2013; Rao et al., 2015; Real et al., 2014; Ruiz-Mercader et al., 2006),

the OL–FP relationship (Bueno et al., 2010; Feng et al., 2014; Forés and Camisón, 2011; García-Morales et al., 2007; García-Morales et al., 2008; Inkinen and Kianto, 2014; Lee and Lee, 2007; Lee and Huang, 2012; Li et al., 2011; Maiga et al., 2013; Pett and Wolff, 2016; Rhodes et al., 2008; Roxas et al., 2014; Sirén et al., 2012), and the OL–NFP relationship (Lee et al., 2012; Lee and Lee, 2007; Maiga et al., 2013; Ngah et al., 2016; Salge and Vera, 2013), which supports the argument that effective OL benefit OP. These findings can be interpreted in the following ways. OL emphasises KM activities, such as knowledge acquisition and integration, through a continuous commitment to learning as well as sustainable investment in training. Such continuous learning and training commitment improve employees’ skills in managing knowledge and lead to better OP (Oh, 2019). At the same time, organisations can more effectively update and integrate their knowledge through continuous OL, guaranteeing the survival of the organisation and improving the organisation’s overall capability to create value via knowledge.

Regarding the moderating impacts of national culture on the relationship between OL and OP relationships, first, the OL–NFP relationship is stronger in large PD regions than in small PD regions. This finding may have been generated by the effect of OL on reducing asymmetric knowledge distribution in large PD societies. In large PD societies, most knowledge is embedded at the top level of the organisational hierarchy, but OL encourages the learning behaviour of all employees in the organisation, which breaks down the knowledge monopoly of managers. Thus, front-line employees may have sufficient knowledge to achieve greater value for the organisation. In contrast, employees and managers are more equal in terms of acquiring knowledge in small PD societies than in large PD societies, making the impacts of OL on organisational value enhancement in small PD societies less obvious than in large PD societies. In addition, the OL–NFP relationship is stronger in collective societies than in individualistic societies. This

observation may be explained by the core values of collective societies, in which people are more likely to learn together. Initiating an OL programme, such as a training programme, provides a collective learning environment in which people need to learn together. People in collective societies are more effective in group learning situations than people in individualistic societies, thereby creating more value for firms engaging in OL in collective societies.

Second, the effect size of the OL–FP relationship was larger in long-term-oriented societies than in short-term-oriented societies. In long-term-oriented cultures, learning is highly valued, and people are typically willing to invest in it (Hofstede et al., 2010). By facilitating learning behaviour in organisations, OL suits the core value of long-term-oriented societies, which helps reduce employees' resistance to implementing OL. Therefore, firms in long-term-oriented societies may enjoy more benefits due to successful OL application than in short-term-oriented societies.

Third, the overall effect size was stronger in restrained cultures than in indulgence-oriented cultures for the links between OL and OP (OOP, FP and NFP). These results can be explained by people's different perceptions of gamification and learning in indulgence-oriented and restraint-oriented societies. In indulgence-oriented cultures, people often lack commitment to learning (Gómez-Rey et al., 2016), which most find less interesting than playing and might consider learning tiresome if the learning activities are unappealing. In contrast, in restraint-oriented societies, people are more likely to want to learn regardless of whether the learning process is joyful or not. Therefore, OL tends to be weakened by the negative perception of learning in indulgence-oriented societies and be implemented more smoothly in restraint-oriented societies. Thus, firms can easily embark on and receive advantages from OL in restrained societies.

We also found that the OL–NFP relationship was stronger in developing economies than in developed economies. This finding can be explained by the rarity of OL in developing countries,

where firms that are better at OL can gain advantages if their competitors have not successfully embarked on OL.

5.2 Theoretical contributions

This study contributes significantly to the theoretical development of the relationship between OL and OP in the following ways. First, responding to the suggestion by Liu et al. (2021), it adds new knowledge regarding the relation between OL and OP for KM practices and OP research in an integrative way.

Second, this study is the first attempt to thoroughly examine the OL–OP relationship using meta-analysis, which adds to the growing body of literature on OL by providing unequivocal answers regarding OL–OP relationships. Positive associations were revealed by analysing large volumes of research data (3,649 subjects from 20 studies for the OL–OOP relationship, 7,219 subjects from 20 studies for the OL–FP relationship and 2,408 subjects from 10 studies for the OL–NFP relationship), which improved the generalisability of the positive influence of OL on OP in a significant way.

Third, this is one of the first studies that has attempted to identify two key moderators surrounding the OL–OP relationship – namely, national culture and economy. Recognising these moderators aligns with recent appeals of contextual research in OL (Anderson et al., 2020). We conducted the study to offer empirical evidence of how national factors moderate the relationship between OL and OP. Therefore, the research expands our knowledge of the influence of national cultural contexts (G. Liu et al., 2022b) and economy on OL and its benefits, such as the effects of different degrees of PD, individualism and indulgence on the OL–NFP relationship, the effects of different extents of long-term orientation and indulgence on the OL–FP relationship, the effects of different

degrees of indulgence on the OL–OOP relationship and the effects of national economy on the OL–NFP relationship.

5.3 Managerial implications

This research has several crucial managerial implications for developing OL in organisations. First, it highlights the benefits of implementing OL; for example, organisations can adopt human resources practices, such as training and mentoring to support knowledge creation, acquiring and application through learning (Leon, 2022). The continuous learning commitment of employees should be encouraged, and training should be provided to all employees to improve their skills. Second, this research sheds light on the application of OL, especially for multinational companies. Practitioners should understand the differences in national cultures when initiating OL. For instance, they should try to break down the knowledge monopoly in large PD societies to facilitate the smooth flow of knowledge from the top to the bottom of organisations. Practitioners should also pay attention to the different learning styles between individualistic and collective societies, as well as provide more incentives for learning in short-term-oriented cultures than in long-term-oriented ones. Moreover, OL designs in indulgence-oriented societies should be more attractive and interesting to encourage employees to participate in learning than in restraint-oriented societies. Third, this research informs firms in developed economies that they should adopt more novel managerial applications to facilitate OL and enhance their competitive advantages, while firms in developing economies should continuously encourage the learning behaviour of employees and continuously invest in OL. Additionally, firms in developing economies should benchmark their OL activities with their competitors in developed economies to sustain their competitive advantages.

5.4 Limitations and future research

This study has some limitations, and further investigation is needed to understand OL thoroughly and broadly. First, we selected only English papers from 1975 to 2018 from the Scopus database. Therefore, language and database biases may weaken our findings, despite past research indicating that these biases were limited (Livingston et al., 2008). Future studies should draw on more databases and select papers written in other languages. Second, as this project focused only on the relations between OL and OP, further studies might expand the relations between OL and other types of performance, such as innovation, group and individual performance, as well as other KM practices, such as knowledge-based human resource management, and KM activities, such as knowledge sharing and different types of performance. In addition to the meta-analysis approach, future studies might adopt an experimental design, machine learning and big data analytics to explore the relationships between KM practices and OP based on a large number of studies. Third, Hofstede's national cultural approach has been critically judged because the indexes of Hofstede's national culture dimensions gradually alter; for example, traditionally Confucian countries are now becoming more individualistic (Minkov, 2018). Future studies might, thus, adopt the new national culture index, such as monumentalism versus flexibility (Minkov et al., 2018), to investigate the differences in OL between these two cultural characteristics. Future research could also adopt other national culture values, such as those proposed in the global leadership and organisational behaviour effectiveness (GLOBE) project (Dorfman et al., 2012), to explore the moderating effects of national culture on OL–OP relations. Finally, this study adopted binary classifications to set moderators. Further studies could use meta-regression analysis to conduct moderating tests and employ more types of moderators, such as national income, national education level, organisational inertia, respondent type and publication type, all of which merit additional attention.

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Tables

Table 1: Research procedures and implementation

| Step No. | Steps | Corresponding section | Detailed step in this study |
|----------|---|-----------------------|---|
| 1 | Defining problem | Sections 2 & 3.2 | Variable formulation and examined relationships: <i>Primary variables:</i> OL, OP (FP, NFP and OOP) <i>Moderators:</i> national culture, economy and industry <i>Relations:</i> OL–OP, effects of contextual factors on OL–OP relationships |
| 2 | Searching studies | Section 3.3 | Sources: Scopus database Keywords: knowledge management, performance |
| 3 | Selecting information from studies | Section 3.4 | Coding items: <i>Study information:</i> author, year, effect size, sample size, OL measurement, OP measurement and country(region) |
| 4 | Evaluating quality of studies | Section 3.4 | Effect size choosing criteria: (a) Studies report correlation coefficient or other statistical values that can be applied to calculate correlation coefficient; or (b) studies used surveys to collect data and test OL–OP relationships. |
| 5 | Testing and synthesising study outcomes | Section 4 | Estimation method: A random-effects model was adopted to test main effects; sub-group analysis was used to calculate moderating effects; Failsafe <i>N</i> was used to analyse publication bias; <i>I</i> ² was applied to examine homogeneity. All these statistical tests were carried out by Comprehensive Meta-analysis (CMA) 3.0. |
| 6 | Interpreting findings | Section 5 | Discussing the cumulative empirical findings in terms of their strength, generality and limitations |
| 7 | Displaying results | Whole paper | Presenting the findings of the study |

Table 2: Selection procedures & criteria

| No. of studies remaining | No. of studies excluding/including | Procedures and criteria |
|---|------------------------------------|---|
| 32,496 | | Locating <i>knowledge management</i> and <i>performance</i> as keywords in the database from 1975 to 2018 |
| 31,526 | - 970 | Excluded 970 papers not in English |
| 24,663 | - 6,863 | Limited subjects to computer science, business management and accounting, engineering, decision science, psychology, social science, economics, econometrics and finance, arts and humanities and multidisciplinary |
| 1,474 | - 23,189 | Not on topic of our study after checking abstract and titles year by year |
| 1,338 | - 136 | Unobtainable studies |
| 1,344 | + 6 | By snowballing from references list |
| 978 | - 366 | Excluded studies not on topic |
| 838 | - 140 | Not empirical |
| 836 | - 2 | Not in English |
| 672 | - 164 | Without showing correlation coefficient (or other indicators that can be adopted to transform into correlation coefficient) |
| 499 | - 173 | Outside scope of measurement |
| 456 | - 43 | Gauging KM as one variable |
| 448 | - 8 | Showing sub-item correlation <i>coefficients</i> |
| 446 | - 2 | Showing incorrect correlation <i>coefficients</i> |
| 444 | - 2 | Duplicated studies |
| 410 | - 34 | With unmatched analysing methods |
| 408 | - 2 | Without showing measurement |
| 386 | - 22 | Literature review studies |
| 307 | - 79 | On group performance |
| 260 | - 47 | On individual performance |
| 182 | - 78 | On KM and innovative performance |
| 132 | - 50 | On KM activities and OP |
| 127 | - 5 | Information is missing |
| 117 | - 10 | Beyond scope of measurement |
| 116 ² | - 1 | Effect size duplication |
| 45 | - 71 | On KM activities and other KM practices |
| Summary: 45 studies about OL and OP were tested in this research. | | |

Note: - denotes excluding, + denotes including

Table 3: Main effects of OL–OP relationships

| Study | Sample size | Total subjects | Effect size | 95% CI | | Two-tailed test | |
|-------|-------------|----------------|-------------|---------------|---------------|-----------------|---------|
| | | | | Lower limited | Upper limited | Z-value | p-value |

² Among 116 studies, the knowledge friendly organisational culture–organisational performance relationship was examined in 56, KM leadership–organisational performance in 22, strategic KM–organisational performance in 14, knowledge codification strategy–organisational performance in 14, knowledge personalisation strategy–organisational performance in 12, KM technologies–organisational performance in 40 and OL–organisational performance in 45.

| | | | | | | | |
|--------|----|-------|-------|--------|-------|-------|-------|
| OL–OOP | 20 | 3,649 | 0.454 | 0.341, | 0.554 | 7.150 | 0.000 |
| OL–FP | 20 | 7,219 | 0.278 | 0.197, | 0.355 | 6.484 | 0.000 |
| OL–NFP | 10 | 2,408 | 0.472 | 0.235 | 0.655 | 3.685 | 0.000 |

Note: CI: confidence interval

Table 4: Categorical moderator test of national culture (OL–OOP relationship)^[1]

| National culture dimension | Sample size | Effect size | 95% CI | | Two-tailed test | |
|----------------------------|--|-------------|---------------|---------------|-----------------|---------|
| | | | Lower limited | Upper limited | Z-value | p-value |
| Power distance (L) | 7 | 0.501 | 0.360 | 0.619 | 6.217 | 0.000 |
| Power distance (S) | 12 | 0.438 | 0.273 | 0.578 | 4.864 | 0.000 |
| Total between | Q _{between} : 0.379; df(Q):1; p-value: 0.538 | | | | | |
| Collectivism (C) | 12 | 0.456 | 0.287 | 0.598 | 4.886 | 0.000 |
| Individualism (I) | 7 | 0.468 | 0.289 | 0.615 | 4.732 | 0.000 |
| Total between | Q _{between} : 0.010; df(Q):1; p-value: 0.921 | | | | | |
| Femininity (F) | 11 | 0.449 | 0.277 | 0.594 | 4.749 | 0.000 |
| Masculinity (M) | 8 | 0.475 | 0.298 | 0.620 | 4.834 | 0.000 |
| Total between | Q _{between} : 0.049; df(Q):1; p-value: 0.824 | | | | | |
| Uncertainty avoidance (S) | 13 | 0.445 | 0.264 | 0.596 | 4.503 | 0.000 |
| Uncertainty avoidance (W) | 6 | 0.489 | 0.396 | 0.571 | 9.117 | 0.000 |
| Total between | Q _{between} : 0.211; df(Q):1; p-value: 0.646 | | | | | |
| Long-term orientation (L) | 14 | 0.456 | 0.314 | 0.578 | 5.766 | 0.000 |
| Short-term orientation (S) | 5 | 0.472 | 0.220 | 0.665 | 3.480 | 0.001 |
| Total between | Q _{between} : 0.014; df(Q):1; p-value: 0.905 | | | | | |
| Indulgence (I) | 4 | 0.281 | 0.156 | 0.397 | 4.302 | 0.000 |
| Restrained (R) | 15 | 0.504 | 0.366 | 0.621 | 6.341 | 0.000 |
| Total between | Q _{between} : 5.823; df(Q):1; p-value: 0.016* < 0.1 | | | | | |

Note: ^[1] Hughes et al. (2008) conducted their surveys in Europe without mentioning specific countries. Thus, this research was excluded when the moderating impacts of national culture were analysed.

Table 5: Categorical moderator test of national culture (OL–FP relationship)

| National culture dimension | Sample size | Effect size | 95% CI | | Two-tailed test | |
|--|---|-------------|---------------|---------------|-----------------|---------|
| | | | Lower limited | Upper limited | Z-value | p-value |
| Power distance (L) | 3 | 0.320 | -0.008 | 0.586 | 1.911 | 0.056 |
| Power distance (S) | 17 | 0.271 | 0.184 | 0.353 | 5.962 | 0.000 |
| Total between | Q _{between} : 0.089; df(Q):1; p-value: 0.765 | | | | | |
| Collectivism (C) | 8 | 0.309 | 0.135 | 0.464 | 3.420 | 0.001 |
| Individualism (I) | 12 | 0.258 | 0.162 | 0.350 | 5.144 | 0.000 |
| Total between | Q _{between} : 0.265; df(Q):1; p-value: 0.607 | | | | | |
| Femininity (F) | 13 | 0.292 | 0.181 | 0.395 | 5.002 | 0.000 |
| Masculinity (M) | 7 | 0.252 | 0.128 | 0.367 | 3.931 | 0.001 |
| Total between | Q _{between} : 0.238; df(Q):1; p-value: 0.625 | | | | | |
| Uncertainty avoidance (S) ^[1] | 10 | 0.310 | 0.168 | 0.439 | 4.163 | 0.000 |
| Uncertainty avoidance (W) | 9 | 0.255 | 0.157 | 0.348 | 4.991 | 0.000 |
| Total between | Q _{between} : 0.411; df(Q):1; p-value: 0.521 | | | | | |
| Long-term orientation (L) ^[1] | 12 | 0.330 | 0.204 | 0.445 | 4.949 | 0.000 |
| Short-term orientation (S) | 7 | 0.203 | 0.122 | 0.281 | 4.857 | 0.000 |

| | | | | | | |
|-------------------------------|---|-------|-------|-------|-------|-------|
| Total between | Q _{between} : 2.860; df(Q):1; p-value: 0.091**<0.1 | | | | | |
| Indulgence (I) ^[1] | 12 | 0.215 | 0.128 | 0.297 | 4.815 | 0.000 |
| Restrained (R) | 7 | 0.392 | 0.245 | 0.522 | 4.945 | 0.000 |
| Total between | Q _{between} : 4.259; df(Q):1; p-value: 0.039*<0.1 | | | | | |

Note: ^[1]Lee and Huang (2012) conducted surveys in the United States, Japan, Germany and the United Kingdom, where the classifications of uncertain avoidance, long-term orientation and indulgence are different. Therefore, this research was omitted when the moderating impacts of uncertain avoidance, long-term orientated culture and indulgence were calculated.

Table 6: Categorical moderator test of national culture (OL–NFP relationship)

| National culture dimension | Sample size | Effect size | 95% CI | | Two-tailed test | |
|----------------------------|---|-------------|---------------|---------------|-----------------|---------|
| | | | Lower limited | Upper limited | Z-value | p-value |
| Power distance (L) | 2 | 0.790 | 0.570 | 0.905 | 4.945 | 0.000 |
| Power distance (S) | 8 | 0.353 | 0.165 | 0.517 | 3.571 | 0.000 |
| Total between | Q _{between} : 8.570; df(Q):1; p-value: 0.003** < 0.01 | | | | | |
| Collectivism (C) | 7 | 0.572 | 0.286 | 0.765 | 3.578 | 0.000 |
| Individualism (I) | 3 | 0.180 | 0.002 | 0.348 | 1.983 | 0.047 |
| Total between | Q _{between} : 5.275; df(Q):1; p-value: 0.022* < 0.1 | | | | | |
| Femininity (F) | 7 | 0.468 | 0.237 | 0.648 | 3.743 | 0.000 |
| Masculinity (M) | 3 | 0.481 | -0.125 | 0.825 | 1.582 | 0.114 |
| Total between | Q _{between} : 0.002; df(Q):1; p-value: 0.962 | | | | | |
| Uncertainty avoidance (S) | 7 | 0.516 | 0.201 | 0.735 | 3.047 | 0.002 |
| Uncertainty avoidance (W) | 3 | 0.357 | 0.010 | 0.627 | 2.014 | 0.044 |
| Total between | Q _{between} : 0.566; df(Q):1; p-value: 0.452 | | | | | |
| Long-term orientation (L) | 8 | 0.418 | 0.185 | 0.607 | 3.378 | 0.001 |
| Short-term orientation (S) | 1 | 0.256 | 0.179 | 0.329 | 6.374 | 0.000 |
| Total between | Q _{between} : 1.779; df(Q):1; p-value: 0.182 | | | | | |
| Indulgence (I) | 5 | 0.182 | 0.073 | 0.287 | 3.258 | 0.001 |
| Restrained (R) | 4 | 0.622 | 0.398 | 0.777 | 4.640 | 0.000 |
| Total between | Q _{between} : 10.643; df(Q):1; p-value: 0.001** < 0.01 | | | | | |

Note: ^[1]Ngah et al. (2016) studied the United Arab Emirates where scores of indulgence and long-term orientation are not applicable; therefore, this study was omitted when effects of indulgence and long-term orientation were tested.

Table 7: Categorical moderator test of economies (OL–NFP relationship)

| Economies | Sample size | Effect size | 95% CI | | Two-tailed test | |
|----------------------|--|-------------|---------------|---------------|-----------------|---------|
| | | | Lower limited | Upper limited | Z-value | p-value |
| Developed economies | 3 | 0.180 | 0.002 | 0.348 | 1.983 | 0.047 |
| Developing economies | 7 | 0.572 | 0.286 | 0.765 | 3.578 | 0.000 |
| Total between | Q _{between} : 5.275; df(Q):1; p-value: 0.022* < 0.1 | | | | | |

Tables in the appendices

Table B1: Descriptive statistics (OL–OOP relationship)

| SN | Study name | Effect size | Sample size | Region | PD | IC | MF | UA | LS | IR | Economy |
|----|---|-------------|-------------|----------------|----|----|----|----|----|----|------------|
| 1 | Baker & Sinkula, 1999a-OOP | 0.320 | 411 | Canada | S | I | M | W | S | I | Developed |
| 2 | Cheng et al., 2008-OOP | 0.488 | 218 | China | L | C | M | W | L | R | Developing |
| 3 | Chien & Tsai, 2012-OOP | 0.420 | 132 | Taiwan (China) | S | C | F | S | L | I | Developing |
| 4 | Choe, 2016-OOP | 0.436 | 117 | Korea | S | C | F | S | L | R | Developing |
| 5 | Gantasala et al., 2010-OOP ^[2] | 0.012 | 92 | Jordan | L | C | F | S | S | R | Developing |
| 6 | Hu, 2013-OOP | 0.532 | 158 | China | L | C | M | W | L | R | Developing |
| 7 | Huang et al., 2010-OOP | 0.080 | 170 | Taiwan (China) | S | C | F | S | L | I | Developing |
| 8 | Hughes et al., 2008-OOP ^[1] | 0.330 | 149 | Europe | NA | NA | NA | NA | NA | NA | Developed |
| 9 | Hussain et al., 2018-OOP | 0.877 | 70 | Pakistan | S | C | M | S | L | R | Developing |
| 10 | Jain & Moreno, 2015-OOP | 0.451 | 205 | India | L | I | M | W | L | R | Developing |
| 11 | Khan et al., 2015-OOP | -0.017 | 214 | Pakistan | S | C | M | S | L | R | Developing |
| 12 | Kharabsheh et al., 2014-OOP | 0.710 | 264 | Jordan | L | C | F | S | S | R | Developing |
| 13 | Lichtenthaler, 2009-OOP | 0.277 | 175 | Germany | S | I | M | S | L | R | Developed |
| 14 | Madani & Ahmadi, 2015-OOP | 0.774 | 120 | Iran | S | I | F | W | S | R | Developing |
| 15 | Noruzi et al., 2013-OOP | 0.590 | 106 | Iran | S | I | F | W | S | R | Developing |
| 16 | Rao et al., 2015-OOP | 0.570 | 182 | China | L | C | M | W | L | R | Developing |
| 17 | Real et al., 2014-OOP | 0.830 | 140 | Spain | S | I | F | S | L | R | Developed |
| 18 | Rodríguez Antón et al., 2016-OOP | 0.341 | 349 | Spain | S | I | F | S | L | R | Developed |
| 19 | Ruiz-Mercader et al., 2006-OOP | 0.252 | 151 | Spain | S | I | F | S | L | R | Developed |
| 20 | Sharabati et al., 2010-OOP | 0.564 | 132 | Jordan | L | C | F | S | S | R | Developing |

Note: ^[1] Hughes et al. (2008) conducted their surveys in Europe without mentioning specific countries. Therefore, this study was excluded when the moderating effects of national culture were analysed. ^[2] Gantasala et al. (2010) did not report a data source, so this study was excluded when the effects of industries were examined. PD: power distance, IC: individualism versus collectivism, MF: masculinity versus femininity, UA: uncertainty avoidance, LS: long-term orientation versus short-term orientation, IR: indulgent versus restrained culture; S of PD denotes small power distance societies; L denotes large power distance societies; I

of IC denotes individualistic societies; C denotes collective societies; M denotes masculine societies; F denotes feminine societies; W denotes weak uncertainty avoidance societies; S of UA denotes strong uncertainty avoidance societies; S of LS denotes short-term oriented societies; L denotes long-term oriented societies; I of IR denotes indulgent societies; R denotes restrained societies.

Table B2: Descriptive statistics (OL–FP relationship)

| SN | Study name | Effect size | Sample size | Region | PD | IC | MF | UA | LS | IR | Economy |
|----|---|-------------|-------------|---|----|----|----|----|-----|-----|------------|
| 1 | Baker & Sinkula, 1999b-FP | 0.350 | 411 | Canada | S | I | M | W | S | I | Developed |
| 2 | Chen et al., 2008-FP | 0.610 | 150 | Taiwan (China) | S | C | F | S | L | I | Developing |
| 3 | Feng et al., 2014-FP | 0.557 | 214 | China | L | C | M | W | L | R | Developing |
| 4 | Forés & Camisón, 2011-FP | 0.320 | 952 | Spain | S | I | F | S | L | R | Developed |
| 5 | García-Morales et al., 2007-FP ^[2] | 0.414 | 246 | Spain | S | I | F | S | L | R | Developed |
| 6 | García-Morales et al., 2008-FP | 0.603 | 408 | Spain | S | I | F | S | L | R | Developed |
| 7 | Inkinen & Kianto, 2014-FP | 0.285 | 261 | Finland | S | I | F | W | S | I | Developed |
| 8 | Kianto et al., 2013-FP | 0.159 | 399 | Finland | S | I | F | W | S | I | Developed |
| 9 | Lee & Huang, 2012-FP ^[1] | 0.154 | 312 | United States, Japan, Germany, United Kingdom | S | I | M | NA | N A | N A | Developed |
| 10 | Lee & Lee, 2007-FP | 0.411 | 215 | Korea | S | C | F | S | L | R | Developing |
| 11 | Li et al., 2011-FP ^[2] | 0.279 | 148 | China | L | C | M | W | L | R | Developing |
| 12 | Maiga et al., 2013-FP | 0.040 | 598 | United States | S | I | M | W | S | I | Developed |
| 13 | Pett & Wolff, 2016-FP | 0.171 | 117 | United States | S | I | M | W | S | I | Developed |
| 14 | Rhodes et al., 2008-FP ^[2] | 0.290 | 111 | Taiwan (China) | S | C | F | S | L | I | Developing |
| 15 | Roxas et al., 2014-FP | 0.174 | 1,441 | New Zealand | S | I | M | W | S | I | Developed |
| 16 | Shih et al., 2009-FP | 0.032 | 155 | Taiwan (China) | S | C | F | S | L | I | Developing |
| 17 | Shirokova et al., 2013-FP | 0.086 | 500 | Russia | L | I | F | S | L | R | Transition |
| 18 | Sirén et al., 2012-FP | 0.250 | 206 | Finland | S | I | F | W | S | I | Developed |
| 19 | Wang & Fang, 2011-FP ^[2] | 0.108 | 144 | Taiwan (China) | S | C | F | S | L | I | Developing |
| 20 | Wu & Chen, 2014-FP | 0.050 | 231 | Taiwan (China) | S | C | F | S | L | I | Developing |

Note: ^[1]Lee & Huang (2012) conducted surveys in the United States, Japan, Germany and the United Kingdom, where the classifications of uncertain avoidance, long-term orientation and indulgence are different. Therefore, this study was omitted when the moderating effects of uncertain avoidance, long-term orientation

and indulgence were calculated. ^[2] García-Morales et al. (2007), Li et al. (2011), Rhodes et al. (2008) and Wang & Fang (2011) did not list the specific industries from which they collated information. Thus, these four studies were excluded when the moderating effects of industries were investigated. PD: power distance, IC: individualism versus collectivism, MF: masculinity versus femininity, UA: uncertainty avoidance, LS: long-term orientation versus short-term orientation, IR: indulgent versus restrained culture; S of PD denotes small power distance societies; L denotes large power distance societies; I of IC denotes individualistic societies; C denotes collective societies; M denotes masculine societies; F denotes feminine societies; W denotes weak uncertainty avoidance societies; S of UA denotes strong uncertainty avoidance societies; S of LS denotes short-term oriented societies; L denotes long-term oriented societies; I of IR denotes indulgent societies; R denotes restrained societies.

Table B3: Descriptive statistics (OL–NFP)

| SN | Study name | Effect size | Sample size | Region | PD | IC | MF | UA | LS | IR | Economy |
|----|--------------------------------------|-------------|-------------|----------------------|----|----|----|----|----|----|------------|
| 1 | Huang et al., 2010-NFP | 0.267 | 170 | Taiwan (China) | S | C | F | S | L | I | Developing |
| 2 | Jiménez-Jiménez et al., 2014-NFP | 0.280 | 81 | Spain | S | I | F | S | L | R | Developed |
| 3 | Lee & Lee, 2007-NFP | 0.554 | 215 | Korea | S | C | F | S | L | R | Developing |
| 4 | Lee et al., 2012-NFP | 0.815 | 105 | Korea | S | C | F | S | L | R | Developing |
| 5 | Maiga et al., 2013-NFP | 0.256 | 598 | United States | S | I | M | W | S | I | Developed |
| 6 | Ngah et al., 2016-NFP ^[1] | 0.858 | 255 | United Arab Emirates | L | C | M | S | NA | NA | Developing |
| 7 | Salge & Vera, 2013-NFP | 0.030 | 459 | United Kingdom | S | I | M | W | L | I | Developed |
| 8 | Shih et al., 2009-NFP | 0.270 | 155 | Taiwan (China) | S | C | F | S | L | I | Developing |
| 9 | Sucahyo et al., 2016-NFP | 0.692 | 139 | Indonesia | L | C | F | W | L | R | Developing |
| 10 | Wu & Chen, 2014-NFP | 0.107 | 231 | Taiwan (China) | S | C | F | S | L | I | Developing |

Note: ^[1] Ngah et al. (2016) studied the United Arab Emirates where scores of indulgence and long-term orientation are not applicable; therefore, this study was omitted when effects of indulgence and long-term orientation were tested. As Ngah et al. (2016) obtained data from an official department of the United Arab Emirates, the study was excluded when the moderating effects of industries were examined. PD: power distance, IC: individualism versus collectivism, MF: masculinity versus femininity, UA: uncertainty avoidance, LS: long-term orientation versus short-term orientation, IR: indulgent versus restrained culture; S of PD denotes small power distance societies; L denotes large power distance societies; I of IC denotes individualistic societies; C denotes collective societies; M denotes masculine societies; F denotes feminine societies; W denotes weak uncertainty avoidance societies; S of UA denotes strong uncertainty avoidance societies; S of LS denotes short-term oriented societies; L denotes long-term oriented societies; I of IR denotes indulgent societies; R denotes restrained societies.

Table C1: Publication bias analysis

| Studies | Failsafe N | k | $N/5k+10$ | Result |
|---------|--------------|-----|-----------|---------------------|
| OL–OOP | 3,978 | 20 | 36.164 | No publication bias |
| OL–FP | 2,442 | 20 | 22.200 | No publication bias |
| OL–NFP | 1,233 | 10 | 20.550 | No publication bias |

Note: OL: organisational learning, OOP: overall organisational performance, FP: financial performance, NFP: non-financial performance

Table D1: Homogeneity test

| Studies | Sample size | Heterogeneity | | | | Tau-square | | | | Result |
|---------|-------------|---------------|-------|-------|--------|------------|-------|------------|--------|--------------|
| | | Q | df(Q) | p | I^2 | τ^2 | SE | δ^2 | τ | |
| OL–OOP | 20 | 1243.845 | 19 | 0.000 | 98.472 | 0.262 | 0.124 | 0.015 | 0.512 | Heterogenous |
| OL–FP | 14 | 183.932 | 13 | 0.000 | 92.932 | 0.064 | 0.032 | 0.001 | 0.253 | Heterogenous |
| OL–NFP | 19 | 202.343 | 18 | 0.000 | 91.104 | 0.054 | 0.022 | 0.000 | 0.232 | Heterogenous |

Note: OL: organisational learning, OOP: overall organisational performance, FP: financial performance, NFP: non-financial performance

Table E1: Categorical moderator test of economies (OL–OOP relationship)

| Economies | Sample size | Effect size | 95% CI | | Two-tailed test | |
|----------------------|--|-------------|---------------|---------------|-----------------|------------|
| | | | Lower limited | Upper limited | Z-value | p -value |
| Developed economies | 6 | 0.428 | 0.217 | 0.600 | 3.793 | 0.000 |
| Developing economies | 14 | 0.466 | 0.322 | 0.588 | 5.803 | 0.000 |
| Total between | Q_{between} : 0.102; df(Q):1; p -value: 0.750 | | | | | |

Table E2: Categorical moderator test of economies (OL–FP relationship)

| Industry type | Sample size | Effect size | 95% CI | | Two-tailed test | |
|----------------------|--|-------------|---------------|---------------|-----------------|------------|
| | | | Lower limited | Upper limited | Z-value | p -value |
| Developed economies | 11 | 0.274 | 0.173 | 0.369 | 5.193 | 0.000 |
| Developing economies | 8 | 0.309 | 0.135 | 0.464 | 3.420 | 0.001 |
| Total between | Q_{between} : 0.124; df(Q):1; p -value: 0.725 | | | | | |

Note: Shirokova et al. (2013) was excluded as it contained data collected in a transition economy.