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How business groups build globally relevant knowledge from local contexts? Exploring the double-edged sword effect of cultural diversity

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Abstract

In this study, we theorize and empirically explore whether and how locally relevant learning contributes to the enhancement of globally relevant learning. We also examine the conditions under which specific types of such locally relevant learning contribute to globally relevant learning in group-affiliated firms in an emerging economy. Using firm-level survey data from India, we explicitly model and test the hypotheses based on our questions. Results suggest positive and significant contributions of home- and host-based locally relevant learning of group-affiliated firms in improving their global learning capabilities. Interestingly, evidence shows an inverse U-shaped moderating effect of dynamic cultural diversity, indicating that the effects of home- and host-based locally relevant learning on globally relevant learning are the highest when dynamic cultural diversity is moderate. The effects are lower when cultural diversity is low or high.

Keywords: business group-affiliated firms, locally relevant learning, globally relevant learning, dynamic cultural diversity, emerging economies, India

1. Introduction

Prior research suggests that organizational learning is influenced by "local search," as firms commonly engage in external learning within their geographic and technological proximity (Wagner, Hoisl, & Thoma, 2014). Although internal and external sources of learning are open to all types of organizations, comprehensive evidence shows that business groups (BGs), a typical organizational form, are best placed to accumulate knowledge from both ends because of their vast network (Carney et al., 2011; Kim & Lui, 2015). Unlike conventional multinational enterprises (MNEs), BGs in general represent collections of multiple legally independent firms with common control but different sets of owners. The member firms in a group are usually linked based on formal and informal ties (Dau, Morck, & Yeung, 2021; Khanna & Palepu, 2004). Previous studies also suggest that compared with conventional MNEs, group-affiliated firms gain an advantageous position in enhancing their innovation and overall firm performance by leveraging local knowledge from multiple locations with help from their BG networks (Chang, Chung, & Mahmood, 2006; Lamin, 2013). However, even though group-affiliated firms are increasingly expanding internationally, how they successfully source and transform such external knowledge dispersed locally around the globe into their global competencies remains unclear.

The seminal work by Christopher Bartlett and Sumantra Ghoshal on "transnational strategies," described in their book "*Managing Across Borders: The Transnational Solution*" (Bartlett & Ghoshal, 1989), provides a good starting point for an investigation. They distinguish MNEs by their strategic objectives of global efficiency and local responsiveness, emphasizing the importance of strong interdependency between their corporate headquarters (HQ) and national subsidiaries in facilitating the "think global and act local" mantra. Their analysis deals with the issue of a multidirectional flow of knowledge between all global units. MNEs' foreign subsidiaries play an important role in knowledge creation and development (Asakawa et al., 2018; Birkinshaw, 1997; Bartlett & Ghoshal, 1988; Lee, Jiménez, & Bhandari, 2020; Williams & Lee, 2011). Therefore, the importance of developing locally embedded knowledge through localized learning for MNEs is emphasized, which may also create strategic opportunities, representing potential sources of revenue (Lee, Ryu, & Kang, 2014; Lee, 2016; Mukherjee, Lahiri, Ash, & Gaur, 2019). Many studies on MNEs suggest that the creation of local learning and knowledge is valuable for firms to meet local needs and realize economies of scope and scale (Bartlett & Bartlett, 1988; Gupta & Govindarajan, 2000; Hutzschenreuter & Matt, 2017; Zander & Kogut, 1995). Additionally, a rapidly growing body of literature highlights the importance of acquiring *international* knowledge and foreign strategic assets either through inward and outward investment activities or through global alliances and partnerships. Doing so helps

emerging market MNEs overcome their latecomer disadvantages and compete successfully in the global marketplaces (Buckley et al., 2016a; Luo & Tung, 2007, 2018; Mathews, 2002, 2006; Xiao & Park, 2018; Xiao, Lew, & Park, 2020).

However, despite notable advances and widespread application, these theoretical perspectives, especially the springboard (Luo & Tung, 2007; Park & Xiao, 2017) and linkage–leverage–learning (LLL) (Mathews, 2006), have largely neglected the importance of other learning paths in shaping firms' global competitive advantages. An example is organizational learning within the BG global network by accessing and leveraging locally relevant knowledge from around the world. Importantly, given the prevalence of BGs in emerging markets, enhancing the theoretical understanding of how emerging market MNEs can leverage and develop global learning and competence, respectively, by defining and measuring locally relevant learning as specific to a focal organizational form in question (i.e., BG) is essential to comprehending MNEs in general and BGs in particular in many emerging markets. However, the literature on the effect of locally leveraged learning on the knowledge development for MNEs at the global level is rather insufficient. That is, unlike the profusion of conceptual works, only a few empirical studies highlight the role of locally leveraged learning in facilitating globally linked learning (e.g., Lee, Jiménez, & Bhandari, 2020; Riviere, Bass, & Andersson, 2021; Thite, Wilkinson, Budhwar, & Mathews, 2016). We attempt to address this issue by arguing that group-affiliated firms can successfully transform and integrate locally embedded knowledge through the effectiveness of local–global learning. Addressing these limitations and furthering our understanding of the learning process and knowledge augmentation in specific BG-affiliated firms, we build on prior research suggesting that knowledge is often embedded in the "local context" (Wagner, Hoisl, & Thoma, 2014). We also explore how such locally embedded knowledge, across different contexts within the global network of group-affiliated firms, facilitate learning at that level. Thus, we theorize two types of locally relevant learning: local learning in the home and host market. We then empirically investigate how they stimulate the creation of globally relevant learning in the context of group-affiliated firms.

Moreover, we examine the role of cultural diversity on local–global learning progression. Although local learnings in home and host markets may be able to facilitate globally relevant learning, these are likely to be shaped by the cultural diversity faced by group-affiliated firms. Researchers in strategy and international business (IB) have long acknowledged and addressed cultural diversity influence on MNEs' behaviors and performance by focusing more on the differences between foreign and home country cultures (Beugelsdijk et al., 2018; Hutzschenreuter, Voll, & Verbeke, 2011; Kim, Gaur & Mukherjee, 2020; Reus & Lamont, 2009; Zaheer,

Schomaker, & Nachum, 2012; Zeng et al., 2013). They have mainly viewed it as an impediment faced by MNEs in their host countries during their internationalization. Such a diversity poses difficulty to MNEs in enjoying reciprocal exchanges in business networks and in their possible contribution to successful learning and development of new knowledge (Hutzschenreuter et al., 2011; Johanson & Vahlne, 2009). However, the potential association of cultural diversity with the "think global and act local" strategy has remained largely underexplored in the IB and strategy literature.

We propose that cultural diversity serves as an important mechanism by which superior knowledge and expertise may be exchanged and recombined between international subsidiaries within an MNE or between its subsidiaries and their international alliance partners (Davis, 2016; Seidl & Werle, 2018). As such, it demonstrates a critical inter-organizational "learning opportunity," allowing firms to explore new resources and capabilities from their international partners (Reus & Lamont, 2009). From a learning point of view, MNEs face cultural diversity when interacting with foreign stakeholders, who may or may not be based in the MNE's home or host country. To explore this double-edged sword effect of cultural diversity, our study uniquely conceptualizes the aforementioned phenomenon along with two separate dimensions, namely, dynamic host- and home-based cultural diversity. The former is hypothesized as the dynamic time-weighted average distance between BG affiliated firms' home country and the host countries where they operate, and the latter is the distance between their home country and home countries of each of their major foreign partners involved in inward international joint ventures with them.

In summary, our study aims to address an important strategic issue by asking an important question. How do globalized group-affiliated firms, based in emerging markets, tackle the fundamental strategic problem of converging locally relevant knowledge into that which is globally relevant, contributing to a firm's global competencies? This study contributes to the organizational learning research and BG literature in the following ways. First, we extend prior research by theorizing and empirically testing how group-affiliated firms can successfully develop global competences through local–global learning effectiveness. We specifically examine how local learnings in home and host markets contribute to the development of globally relevant competence for these group-affiliated firms. Moreover, we advance the understanding of the importance of cultural diversity in the learning processes of BGs by further theorizing and empirically examining how the potential contribution of local learning to globally relevant competences can be shaped by the cultural diversity experienced by group-affiliated firms when competing internationally. Our research thus provides significant insights for understanding the effects of cultural diversity on organizational learning of BGs. For empirical analysis, we draw upon a proprietary dataset

on Indian group-affiliated firms. India, being the second largest emerging economy in the world, have several business groups actively contributing toward its phenomenal global successes, so it provides a good testbed. Importantly, it has huge cultural diversity, equipping its firms to augment local knowledge and converge it to form firm specific capabilities. Our study thus offers a key implication for research on the effect of the interplay between locally relevant learning and cultural diversity on globally relevant learning among group-affiliated firms in emerging economies.

2. Theoretical framework and hypotheses

2.1. Heterogeneity between MNEs and emerging market BGs

Chandler (1990) argues that the primary roots of the business expansion phenomenon of leading conventional MNEs originates from their idiosyncratic core technologies that they exploit within their related industries. Cases in point are Siemens and Du Pont. Even if these are enormous conglomerates, they do not seek "diversified industrial groups," as their expansion strategies are grounded in specialized product lines and multidivisional firm structures (Amsden & Hikino, 1994). This is particularly applicable to large organizations from developed countries. Conventional MNEs from these economies generally possess large shares of domestic markets, earning them significant gains in their business sectors while facilitating their internationalization. Ravenscraft and Scherer (1987) argue that during internationalization, when American conglomerates grow, they expand in the same or similar industrial sectors. To effectively administer their subsidiaries that are geographically spread, they operationally focus on their subsidiaries' financial prowess. In these situations, subsidiaries often progress autonomously, enhancing their own manufacturing competencies and generating exchangeable knowledge for related diversifications in the future (Lee & MacMillan, 2008).

In contrast to conventional MNEs and conglomerates, BGs are not unitary firms. They are commonly bound together and organized as a collection of legally independent firms under the same ownership and administrative control (Colpan & Hikino, 2010; Dau, Morck, & Yeung, 2021; Granovetter, 1995). The unique feature of their governance and loose ties among affiliates within the same BG distinguishes them from conventional MNEs based in Western Europe and the United States (US). Such formal or informal BG ties enable affiliated firms to share not only valuable resources such as technological know-how and expertise (Lamin, 2013) but also important information about foreign market opportunities, thereby acquiring more advanced competitive resources in multinational marketplaces (Carnet et al., 2018). With several affiliated firms being part of BGs, they engage in

internal learning by exploiting synergies in conducting research and development (R&D) projects and exchanging resource pools held by affiliated firms within the group. They also assimilate external learning by gaining experiential knowledge from several markets where their affiliated firms operate, thus facilitating resource and knowledge sharing among member firms (Elia, Munjal, & Scalera, 2020; Lamin, 2013).

Historically, BGs have been around for more than 100 years (Carney, Essen, Estrin, & Shapiro, 2018; Jones & Wale, 1998). They have increasingly become important as a business organization form across much of the globe and particularly in emerging markets (Carney & Gedajlovic, 2002; Holmes, Hoskisson, Kim, Wan, & Holcomb, 2018; Khanna & Yafeh, 2007). According to Carney et al. (2018), BGs represent a substantial fraction of firms in emerging markets, accounting for half or more of their national output. Unlike conventional MNEs based in more advanced countries like Western Europe and the US, the same or similar strategies are not suited operationally to emerging market BGs. Emerging economies generally present an under-developed business condition with a variety of institutional voids, so their internal markets are relatively compact to gain enough profits (Basu, Munjal, & Budhwar, 2022; Doh, Rodrigues, Saka-Helmhout, & Makhija, 2017; Khanna & Palepu, 2010; Xiao, Lew, & Park, 2019). These circumstances push these emerging market BGs to diversify, operating widely in unrelated heterogeneous sectors, specifically in the technological sense, and often completely different from their core flagship industries (Lee, Colpan, Ryu, & Sekiguchi, 2022; Lee et al., 2020). Hence, emerging market BGs become large players domestically and globally, producing diverse industrial products and services. By contrast, conventional MNEs recover their economic robustness based on the restructuring of decreasing operating industries and augmenting the extent of relatedness in their organizations (Lee, Park, Ghauri, & Park, 2014).

However, to evolve as a well-functioning organization, BGs have to incur enormous coordination costs and develop a good and unique corporate governance structure (Hoskisson, Johnson, Tihanyi, & White, 2005). Both are necessary to deal with complex bureaucratic arrangements, balance multiple power centers, and perform fiduciary duties for protecting minority interest (Holmes, Hoskisson, Kim, Wan, & Holcomb, 2018). Prior research shows that BGs in emerging markets often lack good governance, leading to tunneling of profits (Bae, Kang, & Lee, 2002; Masulis, Phan, & Zein, 2011; Siegel & Choudhury, 2012) and expropriation from minority investors (Bertrand, Mehta, & Mullainathan, 2002; Young, Peng, Ahlstrom, Bruton and Jiang, 2008). Besides, BGs are often criticized for tax avoidance through transfer pricing between group firms, concealing cartels, predatory pricing, and political rent-seeking (Dau, Morck, & Yeung, 2021; Kandel, Kosenko, Morck, & Yafeh, 2019). This dark side

of BGs is commonly seen from an entrenched or exploitative perspective. For a detailed discussion on this stream of research see Carney, Van Essen, Estrin, and Shapiro (2018) and Khanna and Yafeh (2007).

Additionally, the knowledge transfer phenomenon of the internationalized group-affiliated firm is double-layered, rather than single-layered, like in conventional MNEs. It is vertically integrated with a network of legally independent peer group-affiliated firms as well as inter-connected with a high level of unrelated diversified constellation of other group-affiliated firms with substantial learning barriers. Therefore, tangible and intangible resource exchanges within an emerging market BG significantly differentiates them from a general network of MNEs and conglomerates in developed countries (Guillén, 2003; Lee et al., 2022). However, hurdles in the exchange of resources among group-affiliated firms within a BG can be significant, especially when they are operating in an array of related and unrelated industries (Lee, Park, Ghauri, & Park, 2014). In summary, our review of the extant literature reveals the uniqueness of emerging market BGs compared with conventional MNEs and the diverse aspects of knowledge exchange for group-affiliated firms.

This study is contextualized in an emerging market, India, which is used as a testbed to provide useful insights for organizational learning and knowledge management within group-affiliated firms. BG, as an important organizational form, is prevalent in many emerging and developed economies. However, Indian group-affiliated firms are recognized to be largely different in terms of strategy and structure (Kedia, Mukherjee, & Lahiri, 2006; Mukherjee, Makarius, & Stevens, 2018), as well as learning (Malik, Sinha, & Blumenfeld, 2012), owing to the underdeveloped institutional mechanisms or "institutional voids" (Khanna & Palepu, 1997, 2010) and wider prevalence of information asymmetry in the country. As such, business group-affiliated firms are more efficient learning organizations than those that are non-affiliated (Lamin, 2013). Moreover, as a culturally and regionally diverse country, India provides firms with opportunities to augment and converge localized knowledge from several sub-national pockets into standardized knowledge that can be universal to the country (Kumar, 2008; Buckley et al., 2016a).

Therefore, Indian group-affiliated firms can be viewed as a natural experiment and example of emerging market firms' from where we can derive relevant learning. Scholars argue that studying Indian firms can provide useful insights for organizational learning and knowledge management in the field of IB. Their sustainable growth in a wide range of industries has contributed significantly to India's rising up as a globally influential economic powerhouse (Contrator, Kumar, & Dhanaraj, 2015; Elia et al, 2020; Lamin, 2013; Munjal, 2014).

2.2. BG affiliation advantages of dual-based global learning through dynamic cultural diversity

Conventional wisdom in strategy and IB research suggests that large firms competing internationally, with their network of affiliated firms spread globally, often face a fundamental strategic dilemma: global–local dilemma (Evans & Doz, 1992; Putnam, Fairhurst, & Banghart, 2016). According to the integration-responsiveness framework (Bartlett & Ghoshal, 1989; Prahalad & Doz, 1987), on the one hand, firms face pressures to respond to the unique needs in each individual market in which their affiliates do business. On the other hand, they have to deemphasize local differences to maximize the efficiency of their value-chain activities on a global scale, which creates a dilemma or a trade-off. Therefore, they employ complex mechanisms for managing and coordinating their activities across different markets where they are embedded (Bartlett & Ghoshal, 1989). Moreover, the role of integrating global and local knowledge has been widely accepted as critical in the success of firms, and this role can be comprehended by a theoretical scrutiny of the extant literature on organization learning (Dodgson, 1993; Grant, 1996, 2002; Kogut & Zander, 1992).

The extant literature on organizational learning suggests firms apply systematic approaches (Crossan, Lane & White, 1999) for learning, which not only helps them learn scientifically but also mitigate the pitfalls associated with inadequate learning processes that are likely to result in misleading knowledge. These systematic approaches include learning by experimentation, reflection and introspection into past actions, and others. Argyris and Schön (1996) suggest that organizational learning happens in loops whereby consequences or outcomes of current action plans affect the strategic ones adopted by firms. Through various iterations, firms develop a proper knowledge base structure, creating mental models or decision frameworks, which help in making and implementing action plans more swiftly than their competitors (Chiva, Ghauri, & Alegre, 2014). Such a supportive learning environment subsequently improves firms' performance in terms of profitability and growth by exploiting opportunities, thereby safeguarding their interest from potential threats in the market (Garvin, Edmondson, & Gino, 2008).

In the IB domain, home and host markets present two distinct but fundamental learning arenas (Yang, Mudambi, & Meyer, 2008), where firms accumulate home- and host-market specific learning. With systems of organizational learning and knowledge integration in place, we posit that a firm can generate new (generalizable) knowledge by distilling learning accumulated from different local contexts (home and host) where it operates and use it to enrich its existing global reservoir of knowledge. In this regard, we conceptualize home- and host-country locally relevant learning as the progression of relevant local marketing and social network knowledge shared by group-affiliated firms within the same BGs. We theorize that the aforementioned learning, undertaken by group-affiliated firms

within the same BGs, through the respective knowledge sharing may play a critical role in contributing to the enhancement of dual-based globally relevant learning. This learning is defined as transnational knowledge sharing by group-affiliated firms within the same BGs through its global networks. This idea is akin to the literature on organizational learning and knowledge transfer, which considers a firm as an institution that augments knowledge and shares it within its network/hierarchy to enhance firm performance (Grant, 1996, 2002; Kogut & Zander, 1992).

An anecdotal example of these main concepts is as follows. Since early 2020, multiple group-affiliated firms within the Tata Group have come together to create the electric vehicle (EV) ecosystem. Specifically, Tata Power brought in its know-how and domain knowledge, Tata Chemicals supported it by providing battery technology and knowledge, and Tata Motors orchestrated the center position for facilitating this EV ecosystem. This knowledge (and resource) sharing among multinational group-affiliated firms within the Tata group means these Tata entities put together the whole EV ecosystem with economies of scale as well as shared social networks and marketing knowledge at the group level. For this knowledge (and resource) sharing, Tata Power provided the accumulated know-how and domain knowledge, for example, home, public, and fleet charging. Tata Chemicals provided the battery technology localization and powertrain systems, and Tata Motors provided the vehicle financing options and its manufacturing orchestration. Furthermore, Titan, TCS, and Tata Technologies shared knowledge of the relevant components, software, design, and so on. The success of creating this EV ecosystem through knowledge sharing within the group was supported by home- and host country-based social networks and the relevant learning of each Tata multinational group-affiliated firm. Facilitating the sharing of marketing knowledge among themselves created strong competitiveness in home and host countries. For example, Tata Chemicals and Motors like other Tata group-affiliated MNEs have manufacturing and/or sales subsidiaries in China, the United Kingdom (UK), and the US, so this knowledge sharing among Tata companies was not limited only to India but also expanded to these host countries, creating host-based locally relevant learning. In the end, this expansion of knowledge sharing can create dual-based globally relevant learning within the Tata group.

Nonetheless, during organizational learning and knowledge transfer, cultural diversity encountered by a firm in various host countries is often taken for granted. At least three important points concerning cultural diversity affect organizational learning between home and host country contexts where the firm operates. First, some scholars have considered cultural diversity as static, neglecting its dynamic facet. Second, they have researched learning and cultural distance/diversity separately, neglecting to combine the two. Third, they have focused on the

host-based cultural distance, neglecting the home-based one. However, over a certain period, MNEs or group-affiliated firms within a globalized BG can learn based on home- and host-based dynamic cultural diversity as "learning by doing." This particular learning effect is positive until the point of climax, after which it gradually declines because its heterogeneity becomes excessive. Memory depreciation effect then takes place at later stages (Kim, Lu, & Rhee, 2012). Thus, such time-weighted dynamic cultural diversity significantly shapes the relationship between locally and globally relevant learning.

As a distinct organizational form, group-affiliated firms within a globalized BG may be in a better position to access locally relevant knowledge, sharing it within their global business networks (Lee, 2016; Lee, Ryu, & Kang, 2014; Lee, Yang, & Park, 2020). These networks have a set of routine channels through which a focal learning unit can transfer knowledge to its peers within the globalized organization (Kim, Lu, & Rhee, 2012). The process enables group-affiliated firms to successfully accumulate and integrate knowledge transmitted into their transnational networked knowledge base within the BG (Lee, Ryu, & Kang, 2014).

Moreover, BGs are commonly considered better organizational forms that can build social and political capital worldwide by leveraging their network of globally dispersed group-affiliated firms (Yiu et al., 2007). Individual subunit members in group-affiliated firms are usually linked by numerous local actors through economic and social ties. They are coordinated by a central entity through common administrative, financial, or managerial controls within the complexed transnational BG (Khanna & Rivkin 2001; Lee & MacMillan, 2008; Lee, MacMillan, & Choe, 2010; Leff, 1978). Hence, these firms are in a better position to make use of their subunits' locally relevant learning opportunities within their globally linked networks to enhance their "dual-based global learning" (i.e., globally linking home- and host-based locally relevant learning) within the BG. Figure 1 illustrates our research framework.

[Insert Figure 1 about here]

2.3. Home- and host-based locally and dual-based globally relevant learning

The organizational learning literature (Grant, 1996; Guillén, 2003; Levitt & March, 1988) assumes that a firm's unique learning process is key to its competitive advantages. Following this assumption, we argue that complex transnational organizations, such as globalized BGs, may develop and enhance their competitive advantages. They can generate superior performance by successfully managing their knowledge through effective organizational-level learning residing within the group because each affiliated firm within the BG is an important source of new ideas and information (Lee, MacMillan, & Choe, 2010; Lee, Park, Ghauri, & Park, 2014). Such

globally relevant learning constitutes unique and productive resources for value creation in their "knowledge reservoir" across global webs within a globalized BG (Lee, MacMillan, & Choe, 2010; Lee, Yang, & Park, 2020). Despite the importance of managing globally relevant learning within an organization (Monteiro, 2015; Schleimer & Pedersen, 2014; Venaik, Midgley, & Devinney, 2005), little is known about how to create it within a complex, huge, and highly globalized organization like a "transnational BG" (Lee, 2016). The absence of literature is due to the lack of attention to the learning process and knowledge embedded in the local contexts of these group-affiliated firms within BGs.

Specifically, home-based group-affiliated firms and their international subsidiaries serve as important sources for globally relevant learning. The reason is home- and host-based local business networks contain multiple potential opportunities and sources for knowledge acquisition, sharing, and learning within a transnational BG (Guillén, 2003; Lee et al., 2010; Lee, Park, Ghauri, & Park, 2014). For example, group-affiliated firms can help the BG gain access to local knowledge by building close relationships with their local suppliers, customers, production partners, technical institutes, and public agencies. Local suppliers and customers can be leading sources of new information because the former is an important source for coordinating local market operations (Dyer & Hatch, 2006; Uzzi, 1997). The latter can serve as critical sources of technological knowledge and learning (Zhou, Yim, & Tse, 2005).

However, for learning to take place within globalized organizations, the integration of such locally embedded knowledge on a global level is necessary. According to Simon (1991, p. 125), organizational learning can happen in two ways: by the learning of its members or by ingesting new ones who have knowledge that the organization did not previously possess. Applying this logic, we propose that globally relevant learning within globalized organizations can only take place when local knowledge acquired by each subunit is subsequently shared with other learning entities. That is, local learning can be considered a prerequisite for globally relevant learning to take place within globalized organizations (Bartlett & Ghoshal, 1988, 1989). Thus, globally relevant learning within globalized BGs is shaped by the local learning process of each individual subunit in home and host markets, requiring the integration of home- and host-based locally relevant learning to be translated at the global level.

Hypothesis 1a (H1a). Home-based locally relevant learning in group-affiliated firms is positively associated with dual-based globally relevant learning among firms within a globalized BG.

Hypothesis 1b (H1b). Host-based locally relevant learning in group-affiliated firms is positively associated with dual-based globally relevant learning among firms within a globalized BG.

2.4. Moderating effects: Home- versus host-based dynamic cultural diversity

The main challenge faced by MNEs when undertaking foreign direct investment (FDI) and competing internationally is how to manage the liability of foreignness, which increases with the distance between the home and host markets. The idea that the aforementioned liability can significantly shape FDI activities and some fundamental decisions of MNEs can be traced back to the pioneering work of Hymer (1960). Hymer suggests, in seminar paper about internationalization, that liability of foreignness is a key factor shaping the internationalization of a firm. Thus, international management researchers have paid much attention to the aforementioned impact on MNEs' decision to enter specific countries, the sequence of market entry, and the choice of entry mode (for a review, see Werner, 2002).

The benefits of an appropriate level of transnational cultural distance primarily relates to cultural diversity advantages, stemming from more inter-organizational learning opportunities, provided by cultural idiosyncrasies. Specifically, cultural differences between international subsidiaries within a MNE or between them and their international alliance partners may represent the differences in organizational knowledge and competencies (Lumineau, Hanisch, & Wurtz, 2021). A large body of research demonstrates the importance of the complementarity of resources and knowledge in understanding and explaining the likelihood of future partnership formation (Ennen & Richter, 2010; Gulati, 1999). Cultural diversity may offer more cross-cultural learning opportunities between group-affiliated firms and their HQs or within their international networks. In this regard, the breadth and heterogeneity of knowledge stemming from greater cultural diversity within a group-affiliated firm's international networks may provide wide valuable locally relevant knowledge. Therefore, transnational cultural diversity improves globally relevant learning, as it increases the potential for acquiring valuable information and knowledge, and learning to share, exchange, and recombine with global MNE networks. The negative aspects come from the cultural differences in societal beliefs, values, and norms of doing business across home and host countries, where different subunits within a group-affiliated firm are located (Miller & Parkhe, 2002; Shenkar, 2001; Zaheer, 1995). With increasing dynamic cultural diversity, the information exchange and transfer is likely to be incomplete or inaccurate. Importantly, its flow between international subsidiaries and their HQs or within the global BG network is likely to be inhibited. This is because greater cultural diversity between group-affiliated firms and their HQs may pose an important barrier when understanding, interpreting, and exchanging inter-organizational information and knowledge within the global BG network. As a result, costs of integrating and translating locally embedded learning into globally relevant learning increases. They are also likely

to outweigh the benefits that group-affiliated firms can derive from the inter-heterogeneity of learning and knowledge sharing among their international subunits within their global BG networks (Shenkar, 2001; Stahl et al., 2010; Zaheer et al., 2012).

The aforementioned arguments suggest positive and negative effects of the dynamic cultural diversity (i.e., time-weighted). The benefits and costs accrued to the local–global learning of group-affiliated firms vary as they integrate and translate locally relevant learning to a globally linked network level (Stahl et al., 2010; Tung & Verbeke, 2010; Zaheer et al., 2012).

The network analytic perspective holds that information and knowledge sharing, as well as its learning, are key benefits of its membership (Beckman & Haunschild, 2002; Burt, 1992; Gulati, 1999). The diversity in global networks of a group-affiliated firm, which is reflected in the transnational institutional distance (i.e., time-weighted cultural diversity), may provide these globalized organizations with diverse and non-redundant sources of locally relevant learning on information, technology, organizational strategies, and market and industry trends. Therefore, group-affiliated firms with globally dispersed subunits located in the home and host local markets with diverse institutional environments have more access to a variety of ideas and perspectives than those in primarily redundant institutional environments. However, if a globally embedded network of a group-affiliated firm is too diverse, then their different international subunits may create more costs for them when integrating locally relevant learning into the global network level.

Such learning and integration may create high costs due to possible difficulties, risks, and even burdens experienced when understanding, learning, and transmitting acquired knowledge to a global level (Makino & Delios, 1996). Group-affiliated firms may consider extracting such unproductive locally relevant learning as time-consuming and expensive (Kim, Lu, & Rhee, 2012). Although this learning effect is unstable, it is dynamic. Hence, it diminishes over time because the learning units may lose or forget their valuable memory if learning has occurred farther past from the perspective of evolutionary learning (Sørensen & Stuart, 2000). The integrative effect of challenges from institutional diversity and memory depreciation that are too wide can trigger "downward pressures" on the flattening or decreasing of the positive effect of learning. This synergistic effect of dynamic cultural diversity and memory depreciation can be conspicuous in the case of inter-organizational and -unit learning (Kim, Lu, & Rhee, 2012; Zhou & Guillén, 2015). Combined, these arguments suggest that dynamic cultural diversity, defined as time-weighted transnational cultural difference, has an inverted U-shaped moderating effect on the relationship between home- or host-based locally and globally relevant learning.

Hypothesis 2a (H2a). Home-based dynamic cultural diversity in terms of time-weighted cultural diversity moderates the relationship between home-based locally and dual-based globally relevant learning among group-affiliated firms within a globalized BG. The effect takes the form of an inverted U-shape, that is, a positive and negative moderation until the semicircular apex and after the apex, respectively.

Hypothesis 2b (H2b). Host-based dynamic cultural diversity in terms of time-weighted cultural diversity moderates the relationship between host-based locally and dual-based globally relevant learning among group-affiliated firms within a globalized BG. The effect takes the form of an inverted U-shape, that is, a positive and negative moderation until the semicircular apex and after the apex, respectively.

3. Methodology

3.1. Sampling and data collection

Our empirical exploration of the hypotheses is based on a dataset of group-affiliated firms from India, where BGs are a dominant form of doing business. Most BGs are well diversified with a presence in a wide range of industries, and a significant degree of internationalization (Khanna & Palepu, 2010). Given these features, scholars argue that Indian BGs provide an ideal setting for research on group-affiliated firms (Chari & David, 2012; Manikandan & Ramachandran, 2015). Our first data are sourced from PROWESS, a widely used and validated database, providing detailed measures and information on Indian firms (e.g., Ayyagari, Dau, & Spencer, 2015; Buckley, Munjal & Requejo, 2022; Elia et al., 2020; Manikandan & Ramachandran, 2015; Munjal, Requejo, & Kundu, 2019), including all those listed on the Bombay Stock Exchange (BSE). Established in 1875, the BSE is Asia's first stock exchange as well as the eleventh largest in the world. The dataset includes data of all of the public limited firms and almost all the major BGs in India. We utilized CapEx as our second data source, which has been previously employed in other studies (Ayyagari et al., 2015). It is a database encompassing all foreign and domestic investment projects announced since 1988, drawing from company annual accounts, media reports, and governmental approval agencies. Additionally, we acquired secondary data on overseas acquisitions of Indian group-affiliated firms from the widely recognized Thompson One database (Buckley, Munjal, Forsans, & Enderwick, 2016a, 2016b, 2016c), serving as our third data source.

We chose Indian group-affiliated firms that acquire companies overseas as our sample for two reasons. First, their internationalization patterns have recently evolved (Kedia, Mukherjee, & Lahiri, 2006), often via acquisitions with majority ownership. In addition, their target countries have become increasingly geographically dispersed with a shift to host locations of developed countries. Second, influential Indian BGs and their group-affiliated firms, which have internationalized, are being closely observed by academia (Ayyagari et al.,2015; Manikandan

& Ramachandran, 2015; Mukherjee, Makarius, & Stevens, 2018; Munjal, Buckley, Enderwick & Forsans, 2014; Vissa, Greve, & Chen, 2010) as well as mass media (Boston Consulting Group [BCG], 2017; The Economist, 2016a, 2016b; Vora, 2013).

Data of Indian group-affiliated firms that made acquisitions overseas were collected in two waves of our survey, consisting of a time gap. The first was from the third quarter of 2013 to the second quarter of 2014, and the second was from the third quarter of 2015 to the second quarter of 2016. During the first wave, our questionnaire was administered to 354 Indian group-affiliated firms, and after three rounds of follow-ups, we received 289 valid responses (81.6% response rate).[1] During the second wave, our questionnaire was administered to 281 Indian group-affiliated firms, which were the respondents with valid responses in the first wave. We received 266 valid responses (92% response rate) after three rounds of follow-ups. Independent variables, that is, home- and host-based locally relevant learning, were measured on the basis of the first wave of the survey. The dependent variable, dual-based globally relevant learning, was measured on the basis of the second wave to minimize common method bias (CMB). Non-response biases for the variables of age, revenue, and profit-loss were checked by conducting a t-test. Non-responding and responding firms did not significantly differ in pertinent firm-related parameters (Ambos & Ambos, 2009). Thus, non-response bias was ruled out.

Originally, we collected a list of 354 Indian MNEs by contacting the Federation of Indian Chambers of Commerce and Industry (FICCI). The FICCI list covers Indian firms that made overseas acquisitions in developed and developing countries (the US, UK, Germany, Australia, France, China, Brazil, South Africa, and so on). In the final sample of 266 group-affiliated firms, within 68 Indian BGs, who made cross-border acquisitions in 42 host countries. Approximately 76% of the respondents were senior managers, such as chief executive officers (CEOs), chief operating officers (COOs), chief information officers (CIOs), vice presidents (VPs), general managers (GMs), and business heads. The remaining 24% were middle-level managers leading departments or functions. Table 1 shows the description of the final sample.

[Insert Table 1 about here]

Given that this study covers home- and host-based locally and dual-based globally relevant learning of group-affiliated firms within Indian BGs, we handled multilevel variables in our survey. The two waves were conducted at the focal parent unit in India. With the help from senior managers, we were able to collect information at the

[1]Using help from high-ranking officials in the Indian Government, we could increase the response rates of our survey.

subsidiary level, as they were most familiar with subsidiary-related learning. Even when these respondent senior managers did not know the situation well, they requested information from their subsidiary managers, thus enabling us to examine subsidiary units' information.

3.2. Variables and measurements

3.2.1. Independent variables

Home-based locally relevant learning. Extending from the previous literature (Lee, 2016; Lee, Ryu, & Kang, 2014), this variable is measured by a 4-item, 7-point Likert scale. The scale assesses home-based locally leveraged knowledge sharing of a focal-group-affiliated firm with peer-group-affiliated firms within a BG. We anchored this variable as learning of Indian group-affiliated firms in India for two sub-dimensions (marketing and social network knowledge). The four items are as follows:

(1) Home-country-based marketing knowledge sharing among peer group affiliates targeting multiple market segments in the home country (India) (*Home_Local1*)

(2) Home-country-based marketing knowledge sharing among peer group affiliates tracking local customer needs and trends in the home country (*Home_Local2*)

(3) Home-country-based social network-related knowledge sharing identifying local customers (*Home_Local3*)

(4) Home country government network-related knowledge sharing succeeding in local institutional regulatory environments (*Home_Local4*)

Host-based locally relevant learning. Extending from the previous literature (Lee, 2016; Lee, Ryu, & Kang, 2014), this variable is measured by a 5-item, 7-point Likert scale. The scale assesses host-country-specific learning or knowledge sharing of a focal-group-affiliated firm or between local units of peer-group-affiliated firms, respectively, on two sub-dimensions (marketing and social network knowledge). The five items are as follows:

(1) Host-country-specific marketing knowledge targeting multiple market segments in a foreign country (*Host_Local1*)

(2) Host-country-specific marketing knowledge sharing tracking customer needs and trends (*Host_Local2*)

(3) Social network-related knowledge sharing identifying local customers (*Host_Local3*)

(4) Local government network-related knowledge sharing overcoming/responding to local institutional regulatory environments (*Host_Local4*)

(5) Social network-related knowledge sharing managing various political/economic risks in the host country (*Host_Local5*)

Home-based dynamic cultural diversity (time-weighted Mahalanobis distance). Based on previous literature (Zhou & Guillén, 2015), this variable is measured as the average cultural distance between India (the home country of Indian group affiliates) and the home countries of its major international joint venture[2] partners (foreign-invested MNCs) operating in India. It is weighted by the number of years that each major international joint venture's foreign partner (who has home country *j*) of a focal Indian firm *i* has operated in India.[3]

Host-based dynamic cultural diversity (time-weighted Mahalanobis distance). Following the previous literature (Zhou & Guillén, 2015), this variable is measured as the average cultural distance between India (the home country of Indian group affiliates) and host countries (where they operate). It is weighted by the number of years that focal Indian firm *i* has operated in host country *k*.[2]

3.2.2. Dependent variable

Dual-based globally relevant learning. Extending from the previous literature (Lee, 2016; Lee, Ryu, & Kang, 2014), the dependent variable is measured by a 6-item, 7-point Likert scale. The scale assesses transnational knowledge sharing of a focal-group-affiliated firm with peer-group-affiliated firms within an Indian BG through global networks (in terms of *globally integrating* home-based shared knowledge *with* that which is host-based, within the global complex webs supported by transnational teams, expatriates, and learning units, as well as Indian diaspora networks, across the globe) on two sub-dimensions of relevant knowledge (i.e., marketing and social networking).[4] The six items are as follows:

(1) Through global networks, a focal group-affiliate's home-country marketing knowledge of targeting multiple market segments in a home country is integrated with its overseas subsidiaries' knowledge, exchanged with their peer group-affiliates' host-country-specific marketing knowledge of targeting multiple market segments in host countries (*Dual_Global1*).

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[2] We categorize a "major international joint venture" if a foreign-invested MNC partner owns 50 percent or more and less than 95 percent of ownership in its international joint venture with an Indian group-affiliated partner. Thus, even if a focal Indian group-affiliated firm has three international joint ventures with three different foreign partners, we decategorize the international joint ventures with foreign partners if they do not match the criteria.

[3] To measure cultural diversity, we apply Mahalanobis distance calculation method based on nine GLOBE cultural dimensions (House et al., 2004). It is a more updated culture index than that of Hofstede's four cultural dimensions (1980), and it is used by Zhou and Guillén (2015).

[4] After the interviews, which were performed before the first wave of our survey with 11 senior managers from 8 group-affiliated firms within 5 Indian BGs, we concluded that marketing and social network knowledge are the appropriate sub-dimensions of both locally relevant and globally linked learning for our sample firms, operating in various industries and making cross-border acquisitions in diverse host countries.

(2) Through global networks, a focal group-affiliate's home-country marketing knowledge of tracking domestic customer needs and trends is integrated with their overseas subsidiaries' knowledge, exchanged with their peer group-affiliates' host-country-specific marketing knowledge of customer needs and trends (*Dual_Global2*).

(3) Through global networks, a focal group-affiliate's home-country social network knowledge shared with peer group-affiliates, identifying domestic customers, is integrated with their overseas subsidiaries' knowledge, exchanged with their peer group-affiliates' host-country social network knowledge, identifying local customers (*Dual_Global3*).

(4) Through global networks, a focal group-affiliate's home government network-related knowledge shared with peer group-affiliates, succeeding/complying with domestic institutional regulatory environments, is integrated with their overseas subsidiaries' knowledge, exchanged with peer group-affiliates' host government network-related knowledge, overcoming local institutional/regulatory environments in host countries (*Dual_Global4*).

(5) Through global networks, a focal group-affiliate's home-country social network knowledge shared with peer group-affiliates, managing political/economic risks domestically, is integrated with their overseas subsidiaries' knowledge, exchanged with peer group-affiliates' host-country social network knowledge, managing the aforementioned type of risks in host countries (*Dual_Global5*).

(6) Through global networks, a focal group-affiliate's home-country customer knowledge, shared by peer group affiliates, on corporate customer business/industry environments domestically is integrated with their overseas subsidiaries' knowledge and exchanged with other peer group affiliates' host-country customer knowledge on the aforementioned business and environments in host countries (*Dual_Global6*).

We used 16 professional researchers to perform telephone or face-to-face brief interviews in our survey. We explained the conceptual differences between locally and globally relevant learning and helped them easily differentiate between the two.[5]

3.2.3. Control variables

We controlled for firm- and BG-level variables. First, firm-level control variables are firm age and size, R&D and marketing intensity, profitability, and international experience. Firms that are large and old can acquire substantial resources and capabilities to boost globally relevant learning (Lee, Ryu, & Kang, 2014). Firm age and size are operationalized as the logarithm of the number of years since its establishment and its total assets,

[5] In such cases where senior managers requested information from subsidiary managers, these 16 professional researchers provided assistance by explaining the key concepts to the latter when requested by the former.

respectively (Ayyagari, Dau, & Spencer, 2015; Nair, Demirbag, & Mellahi, 2015). Firms that are highly R&D and marketing intensive can accumulate sufficient intangible resources, as well as technological and marketing capabilities that can positively affect globally relevant learning (Belderbos, Leten, & Suzuki, 2013; Song, 2014). Firm R&D and marketing intensity are operationalized as the ratio of total R&D expenses to firm sales, and the total value of marketing, advertising, and distribution expenses to firm sales, respectively (Manikandan & Ramachandran, 2015). A firm's current profitability reflects its future investment potential for globally linked learning (Song, 2014). Firm profitability is operationalized as return on assets (ROA), that is, the ratio of operating profit to total assets (Girod & Whittington, 2016; Manikandan & Ramachandran, 2015). A firm having more international experiences has more experiential and learning capabilities to enhance globally relevant learning (Lee, Ryu, & Kang, 2014; Buckley, Munjal, Enderwick & Forsans, 2016a). International experience is operationalized as the logarithm of the number of years since the establishment of its first international venture (Nair, Demirbag, & Mellahi, 2015).

Second, BG-level control variables are diversification and internationalization. The more a BG is diversified, the more it can leverage its tangible and intangible resource reservoirs across diversified industries (Chang & Hong, 2000). Hence, group diversification positively influences globally relevant learning, and is operationalized as the number of unique two-digit NIC (National Industrial Classification of India) industries in which the BG operates (Ayyagari et al., 2015). Group size and diversification highly correlate with each other, thus, we do not control for both in the regression models. The more a BG is internationalized, the more likely it is that firms affiliated to it can take internationalized strategic actions in any given market. Therefore, firms affiliated to an internationalized group are more likely to enhance globally relevant learning (Lee, Ryu, & Kang, 2014). Group internationalization is operationalized as foreign earnings from exports of goods and services as a percentage of sales, aggregated across all affiliated-firms of the BG (Ayyagari et al., 2015).

We also include industry dummies using the two-digit NIC industry code to consider the potential impact of unobserved differences with different industrial characteristics on dual-based globally relevant learning of group affiliates.

3.3. Analytical approach

To investigate our hypotheses, we adopted a two-step modelling approach. Endogeneity issues were clarified by examining whether there were two-way causal links between locally and globally relevant learning by performing the panel Granger causality analysis (Buck, Liu, & Skovoroda, 2008). The result presents a

unidirectional causal relationship running from locally relevant to globally linked learning.

Next, we used hierarchical linear modeling (HLM). Its data structures include data ordered hierarchically. The present study has two levels of analysis: firm and BG. The first level (firm) is embedded or nested within the second (BG). When one unit of analysis is a subset of another and data are available for all levels, HLM data structure is established. It is a statistical method for examining data with complex and hierarchical patterns of variability because it considers the variability related to each level of nesting or hierarchy (Aguinis, Gottfredson, & Culpepper, 2013). Rejecting a multilevel data structure causes critical statistical problems. However, merely pooling multilevel data and exploiting ordinary least-squares (OLS) brings about underestimation of standard errors, resulting in a greater number of type I errors. Independent variables are not actually significant but become significant, thus infringing the OLS assumption that the errors are independent. Considering these statistical issues, using multilevel modelling such as HLM to assess our hypotheses is reasonable.

4. Results

4.1. Reliability and validity analysis

Before empirically testing our hypotheses, we checked for reliability, validity, and the potential bias issue in the self-reported survey data.

Exploratory factor analysis. We conducted an exploratory factor analysis using IBM SPSS Statistics 23.0 to check the unidimensionality of operationalized measures. Table 2 shows the results. Each item in the two waves was grouped, and the total of 3D factors was deducted when we applied an eigenvalue greater than one. We also calculated Cronbach's alpha coefficients to verify internal consistency, and all three coefficients have values over 0.80.

[Insert Table 2 about here]

Common method bias. To solve the problem of CMB, we sought procedural remedies. First, we attempted to collect separate responses from the "time lag" between answering independent variables and a dependent variable by utilizing the two waves of our survey (Podsakoff et al., 2003). Second, when measuring moderating variables, we used GLOBE cultural index (House et al., 2004) to avoid "obtaining the measures of both predictor and criterion variables from the same … source" (Podsakoff et al., 2003, p. 887). Finally, we conducted the Harman's single-factor test on the items included in our model to estimate if CMB augmented the relationships (Podsakoff et al., 2003). Either a single factor will present from a factor analysis of all measurement items or one general

factor will account for most of the variance if CMB exists in the data. The factor analysis exhibits three factors with eigenvalues greater than 1, the first, second, and third of which are 6.34, 2.65, and 1.59 (eigenvalues), respectively, which explain 43.63%, 17.21%, and 10.16% of the total variance. Hence, the analysis of factors does not illustrate a single background factor, supporting the data's validity.

Confirmatory factor analysis. To confirm discriminant and convergent validity, we statistically ran a confirmatory factor analysis (CFA) using AMOS 22.0, investigating if contradictions between the hypotheses of prior research and our data were deducted (Anderson & Gerbing, 1998). The significance level of factor scores of the measured variables is under 0.001, so no item was erased. We evaluated adequacy to deduct optimal composition of items for each scale. The model fit indices presents satisfactory results (χ^2=205.461 (df=82, p<0.001), χ^2/df=2.506, goodness of fit index (GFI)=0.912, adjusted goodness of fit index AGFI=0.907, RMR=0.050, normed fit index (NFI)=0.935, indicators of financial integration (IFI)=0.968, Tucker-Lewis index (TLI)=0.963, CFI=0.970, and root mean square error of approximation (RMSEA)=0.048). Using Cronbach's alpha coefficients to verify the internal consistency of each construct, we found that all the factors exploited for measurement are above 0.80, which is above the standard of internal consistency (Nunnally & Berstein, 1994). Moreover, we examined CR (composite reliability) and AVE (average variance extracted). The results indicate that the constructs exceed the standard value (CR>0.70, AVE>0.50), specifically those of home-based locally (CR=0.88, AVE=0.64), host-based locally (CR=0.86, AVE=0.57), and dual-based globally relevant learning (CR=0.94, AVE=0.73). Therefore, all the measured items have convergent validity (Hair et al., 2006).

4.2. Hypothesis testing

Table 3 shows that the correlation coefficients are below 0.50, confirming the minimum presence of multicollinearity. We ran variance inflation factor (VIF) to check for multicollinearity among variables. The highest value is 1.81, which is below the limit of 10, suggesting a minimal problem of multicollinearity (Chatterjee & Price, 1991). Table 4 exhibits four multilevel models involving the effects of firm and BG variables on dual-based globally relevant learning.

[Insert Tables 3 and 4 about here]

At the firm level, Hypotheses 1a and b predict that the higher the level of home- and host-based locally relevant learning, the higher the level of globally relevant learning. Model 2 of Table 4 shows that the coefficient for home-based locally relevant learning is positive and statistically significant at a high level (b=0.520, p=0.000), suggesting a strong support for Hypothesis 1a. The coefficient for host-based locally relevant learning is also

positive and statistically significant at a low level (b=0.106, p=0.051), supporting Hypothesis 1b. However, it is weaker than that for home-based locally relevant learning. These results are consistent in Models 3 and 4, providing consistent support for Hypotheses 1a and b.

At the firm level, Hypotheses 2a and b assume that the positive relationship between home-based (or host-based) locally and dual-based globally relevant learning is curvilinearly (inverted U-shape) moderated by the home-based (or host-based) dynamic cultural diversity. In Model 3, we included a quadratic equation of home- and host-based time-weighted cultural diversity. In Model 4, we added a quadratic two-way interaction between home-based locally relevant learning and time-weighted cultural diversity, and host-based locally relevant learning and time-weighted cultural diversity, along with two quadratic equations of home- and host-based time-weighted cultural diversities. Model 3 shows that the coefficient of home-based time-weighted cultural diversity is 3.484, and its p-value is below 0.049. The square term coefficient of home-based cultural diversity is -7.953, and its p-value is 0.003. To understand this quadratic equation easily, we present Figure 2. The figure shows that as the level of home-based time-weighted cultural diversity increases, the curvilinear line gradually moves upward. After the vertex of the curve, the line gradually and steeply moves downward, exhibiting an inverse U-shaped form.

Moreover, Model 3 shows that the coefficient of host-based time-weighted cultural diversity is 6.674, and its p-value is 0.002. The square term of the coefficient of host-based cultural diversity is -9.931, and its p-value is 0.002. The method followed in Figure 3 is the same as that in Figure 2. It illustrates that as host-based time-weighted cultural diversity increases, the curvilinear line steeply moves upward until it reaches the highest point. After the apex, the curvilinear line steeply moves downwards, showing an inverted U-shaped form.

[Insert Figures 2 and 3 about here]

In Model 4, the coefficient of home-based locally relevant learning is 0.201, and its p-value is 0.002. The coefficient of home-based time-weighted cultural diversity is 4.323 (p=0.048), and its squared term is -8.617 ($p <$ 0.013). The coefficient of interaction between home-based locally relevant learning and time-weighted cultural diversity is 2.873 (p=0.042), and the coefficient of interaction between home-based locally relevant learning and the squared term of home-based time-weighted cultural diversity is -5.681 (p=0.011). To interpret this quadratic two-way interaction, we present Figure 4. Whether the level of home-based locally relevant learning is high or low, as the time-weighted cultural diversity changes from the lower to the higher level, the two curvilinear lines form an inverted U-shape. Nonetheless, the two lines move differently. When home-based locally relevant learning is high, the line moves slightly upwards from the lowest point until the apex of the curve, and then, slightly

downwards. When it is low, the line moves upwards from a high point (compared with that of high home-based locally relevant learning) and then steeply downwards to the lowest point after the vertex of the curve. Thus, Hypothesis 2a is supported.

In Model 4, the coefficient of host-based locally relevant learning is 0.116, and its *p*-value is 0.088. The coefficient of host-based time-weighted cultural diversity and its squared term is 6.090 (p=0.016) and -8.634 (p=0.007), respectively. The coefficient of interaction between host-based locally relevant learning and time-weighted cultural diversity is 3.689 (p=0.014) and that between host-based locally relevant learning and the squared term of host-based time-weighted cultural diversity is −5.749 (p=0.002). To interpret this quadratic two-way interaction, we present Figure 5. The figure shows that irrespective of whether the level of host-based locally relevant learning is high or low, the two curvilinear lines take inverted U-shaped forms but with different movements. When the host-based locally relevant learning is high, the line moves upward from the lowest point until the apex of the curve and then downward. By contrast, when it is low, the line forms a clear and complete inverted U-shaped curve. Thus, Hypothesis 2b is robustly supported.

[Insert Figures 4 and 5 about here]

The results for control variables show interesting contrast. At the firm level, the effects of age, size, R&D intensity, ROA, and international experience on dual-based globally relevant learning are positive and significant. The effect of international experience on the dependent variable is positive but partly significant. However, that of firm marketing intensity is insignificant. At the BG level, the effect of group diversification on dual-based globally relevant learning is positive and significant, whereas that of group internationalization on the dependent variable is positive but insignificant.

4.3. Robustness test

As a robustness check, instead of using Mahalanobis distance calculation method, which is based on the GLOBE cultural index of nine dimensions, we used Kogut and Singh's (1988).This method is based on Hofstede's cultural index of four dimensions to measure home- and host-based time-weighted cultural diversity. Nevertheless, the results are largely the same.[6]

5. Discussion and conclusion

[6] The results of this robustness check are available upon readers' request.

In this study, we theorize and empirically examine how BG affiliated firms from emerging markets develop their global competencies by successfully converging locally relevant knowledge into that which is globally relevant. To address the above, we develop two broad sets of hypotheses. We further incorporate the moderating role of dynamic cultural diversity in explaining the relationships between the two types of locally relevant and global learning. In our first set of hypotheses, we address to what extent and in what ways specific types of locally relevant learning (that is, home- and host-based) contribute to the enhancement of globally relevant learning for BG affiliated firms in emerging markets. We empirically test the aforementioned theoretical argument using the context of Indian BG affiliated firms. The findings demonstrate that the knowledge acquired and assimilated through home or host market positively contributes in enhancing globally relevant learning for BG affiliated firms through the comprehensive integration of locally embedded learning.

In our second set of hypotheses, we examine how dynamic cultural diversity influences the contributions of the two types of locally relevant learning to globally relevant learning. We predict that the effects of the aforementioned learning on globally relevant learning vary as a nonlinear function of dynamic cultural diversity. Building on this perspective (Elia, Petruzzelli, & Piscitello, 2019), as well as locally and globally relevant learning literature (Lee, Ryu, & Kang, 2014; Lee, 2016), we propose that these two types of locally relevant learning have the strongest positive impact on globally relevant learning under intermediate levels of dynamic cultural diversity. By contrast, their effects become weaker at lower and higher levels of the aforementioned diversity. Our statistical analyses indicate that the two types of locally relevant learning have the highest effect on globally relevant learning when dynamic cultural diversity is moderate. However, when it is low or high, the effects are lower.

This study contributes to organizational learning research and BG literature in several ways. First, it is mainly concerned with attempting to theoretically and empirically account for the importance of developing locally embedded knowledge through home- and host-based learning processes for a BG affiliated firm to enhance its global learning. Our findings show how locally relevant learning matters for globally relevant learning in the context of BG affiliated firms in India. This can significantly raise scholarly understanding on how these groups have evolved and transformed over the years (Kedia et al., 2006) and the way in which their knowledge augmentation capabilities have facilitated their global significance and internationalization (Mukherjee et al., 2018; Elia et al., 2020). Our study also adds to the body of literature on India-focused IB and management that has greatly proliferated over the last few decades (for details see Mukherjee, Kumar, Mukherjee, & Goyal, 2022).

Empirical support is provided for the notion that knowledge is often embedded in the local context.

Transforming and integrating such knowledge through effective processes can significantly facilitate organizational learning and subsequent knowledge creation (Argote & Miron-Spektor, 2011) at a global level. We also provide a solid contribution to organizational learning through a fine-grained analysis of how to create globally relevant competences through an effective transformation from local to global learnings. To the best of our knowledge, this study is the first to theoretically and empirically explore how group-affiliated firms can successfully deal with the global–local dilemma.

Second, our study establishes that dynamic cultural diversity plays an important role in the link between locally and globally relevant learning. It answers the question "under what conditions can specific types of locally relevant learning in BG affiliated firms be transformed into learning at a global level?" The results of this study underline the importance of considering the degree of dynamic cultural diversity when making claims about global learning implications of locally relevant learning. That is, although locally relevant learning may not improve globally relevant learning identically, it may offer a greater contribution when employed in an appropriate setting. For instance, different levels of dynamic cultural diversity, indicate boundary conditions or limitations for locally relevant learning.

Finally, this study theoretically contributes to extant literature by integrating existing theories on the contribution of locally relevant learning under varying levels of dynamic cultural diversity. Specifically, it emphasizes that cultural diversity plays both positive and negative roles in shaping the learning effect of MNEs, an issue that has not yet been theorized and empirically examined in prior research. It also bridges any gaps in organizational learning literature from a dynamic cultural diversity perspective. Apart from a conventional view emphasizing a lineally negative side of cultural distance, it proposes a complex curvilinear effect of dynamic cultural diversity on the contribution of locally relevant learning (in home and host markets) to globally relevant learning within group-affiliated firms. Our study shows how the dynamic feature of cultural diversity, referred to as "dynamic cultural diversity," shapes the transformation of local–global learning.

Our results demonstrate that dynamic cultural diversity represents a double-edge sword with costs and benefits incurred and accrued in explaining the contribution of locally relevant learning to that which is globally relevant. The transfer from the former to the latter is never easy and greater cultural diversity is likely to impede the knowledge and information flow between international subsidiaries and their BGs. That is, greater dynamic diversity is expected to negatively moderate the relationship between locally relevant and globally relevant learning. However, a lower level of dynamic cultural diversity may be insufficient to allow the recombination of

new knowledge and information, leading to a less need of transferring relevant learning from a local level to a global one.

These results have important managerial implications. First, firms can benefit by engaging in host- and home-based locally relevant learnings. However, managers should be aware that the benefits accrued from exploiting the aforementioned type of learning may not be apparent at all levels of the firm. For a BG affiliated firm, the benefits of locally relevant learning may not be apparent unless they are successfully transmitted into learning at a global level. Therefore, firms may achieve competitive advantage in terms of global learning benefits not only by engaging in locally relevant learning but also by making the transmission from locally relevant learning into that which is globally relevant, more effective, and different than that of competitors.

Furthermore, the effect of locally relevant learning may further vary on the basis of the dynamic cultural diversity in which it is deployed and the uniqueness of its competence. Specifically, group-affiliated firms may achieve higher globally relevant learning benefits by engaging in locally relevant learning, but with a moderate level of dynamic cultural diversity. They should carefully consider differentiating the capability of successfully transmitting locally relevant learning into that which is globally relevant, investigating the availability of the best conditions associated with the transmission. For example, managers may wish to support and facilitate the transmission from locally to globally relevant learning when dynamic cultural diversity is moderate. However, they should exercise caution when doing the same in cases of low or high levels of dynamic cultural diversity.

Our study is not without limitations, which suggest important avenues for future research. First, we clarify a key contingency, examining the moderating effects of dynamic cultural diversity that influences the contribution of locally to globally relevant learning. The empirical findings point to striking differences in the effects of the two types of locally relevant learning on globally relevant learning, between the settings characterized by different degrees of dynamic cultural diversity. Nonetheless, future research may need to go beyond context-specific differences. Second, as we primarily examined the interactive effects of home-/host-based locally relevant learning and the respective home/host-based dynamic cultural diversity, we did not look at how the interplay between home-based locally relevant learning and host-based dynamic cultural diversity could contribute to globally relevant learning. Home-based dynamic cultural diversity may affect not only home-based locally relevant learning, but also host-based learning and vice versa. Future research can address these possible interactive effects in an effort to extend this examination of locally relevant learning and dynamic cultural diversity and better understand the broader issue of how locally relevant learning and dynamic cultural diversity interactively contribute to

globally relevant learning in group-affiliated firms. Another possible limitation of our study is that the Indian context affords us a unique opportunity to examine how host- and home-based locally relevant learnings and dynamic cultural diversity interact, contributing to enhancing globally relevant learning in group-affiliated firms originating from one of the world's largest emerging economies. Although studying Indian BG firms can add to scholarly knowledge about BG firms from other countries, especially from Asia where cultural diversity can inform firm's learning strategy (Lee et al., 2022), we call for caution in applying our analysis to other contexts because of country specific idiosyncrasies. Moreover, BG definitions across economies are inconsistent, which can impede generalizability of group-level studies. Finally, although we advanced the literature on BGs by offering important insights on how group-affiliated firms in emerging markets may seek globally relevant learning, this study remains limited to the analyses based on a research context of Indian BGs. Examining the cross-national variation of our conceptual framework would be intriguing.

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Table 1. Sample description[a].

Acquirer industry	Number	Percent (%)
Primary sector	9	3.38
Construction	8	3.01
Wholesale	5	1.88
Transport	8	3.01
Financial	9	3.38
Services	92	34.59
Manufacturing	135	50.75
Total	266	100
Target country		
USA	85	30.44
UK	49	17.57
Germany	21	7.71
Australia	18	6.58
Singapore	17	6.12
France	13	4.68
South Africa	12	4.32
Others	63	22.59
Total	278	100
Target market status		
Developed	229	82.37
Developing	49	17.63
Total	278	100
Target country official language		
English	191	68.71
Others	87	31.29
Total	278	100

[a] This table shows the characteristics of the final sample firms' cross-border acquisitions.

Table 2. Exploratory factor analysis.

Measured variables	Measurement items[a]	Components		
		1	2	3
Dual-based globally relevant learning	*Dual_Global3*	0.893	0.247	0.050
	Dual_Global1	0.863	0.37	0.091
	Dual_Global2	0.861	0.304	0.183
	Dual_Global5	0.847	0.154	0.266
	Dual_Global6	0.829	0.226	0.298
	Dual_Global4	0.824	0.407	-0.203
Home-based locally relevant learning	*Home_Local1*	0.271	0.851	0.091
	Home_Local4	0.309	0.832	0.255
	Home_Local2	0.246	0.802	0.396
	Home_Local3	0.506	0.701	0.108
Host-based locally relevant learning	*Host_Local2*	-0.162	0.153	0.884
	Host_Local3	0.143	0.05	0.884
	Host_Local5	0.504	0.028	0.687
	Host_Local1	0.337	0.451	0.651
	Host_Local4	0.098	0.28	0.612
Cronbach's α		0.906	0.837	0.804

[a] See the measurement items in the section of variables.

Table 3. Means, standard deviations, and correlations.

Variable	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9	10	11	12	VIF
1. Dual-based globally relevant learning	5.03	1.10													
2. Home-based locally relevant learning	3.91	1.16	0.45*												1.74
3. Host-based locally relevant learning	4.36	1.08	0.39*	0.26*											1.58
4. Home-based time-weighted cultural diversity	0.27	0.09	-0.13*	-0.01	-0.05										1.78
5. Host-based time-weighted cultural diversity	0.37	0.12	-0.14*	-0.03	-0.09	0.33*									1.81
6. Firm age (log)	5.45	3.51	0.08	0.02	0.15*	0.12*	0.13*								1.45
7. Firm size (log)	11.98	10.57	0.37*	0.38*	0.13*	-0.02	-0.01	0.11							1.74
8. Firm R&D intensity (ratio)	0.00	0.01	0.48*	0.25*	0.01	-0.04	-0.04	-0.00	0.38*						1.02
9. Firm marketing intensity (ratio)	0.05	0.04	0.46*	0.31*	-0.14*	0.07	0.11	0.15*	0.43*	0.49*					1.71
10. Firm ROA (ratio)	0.14	0.13	0.47*	0.30*	-0.03	0.01	0.06	0.08	0.48*	0.44*	0.48*				1.30
11. International experience (log)	3.02	2.24	0.23*	0.18*	0.06	0.17*	0.28*	0.26*	0.21*	0.18*	0.35*	0.30*			1.21
12. Group diversification	14.74	9.62	0.41*	0.25*	0.13*	-0.06	-0.07	0.14*	0.46*	0.19*	0.17*	0.22*	0.03		1.70
13. Group internationalization	0.21	0.18	0.40*	0.28*	0.10	0.06	0.13*	-0.06	0.48*	0.34*	0.39*	0.29*	0.40*	0.20*	1.04

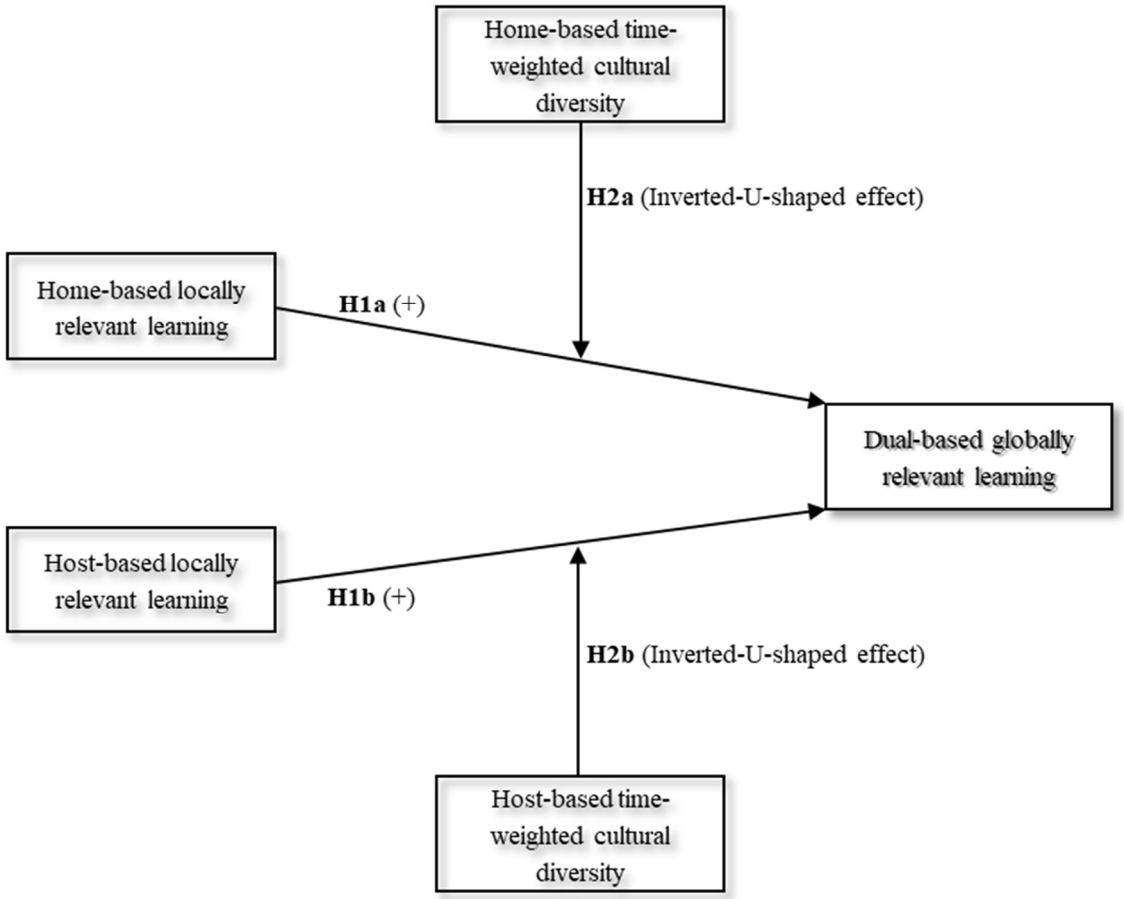
*$p < 0.05$; two-tailed significance levels.

Table 4. Results of HLM analyses[a].

Variables	DV: Dual-based globally relevant learning											
	Model 1			Model 2			Model 3			Model 4		
	B	SE	*P*-value	B	SE	*P*-value	B	SE	*P*-value	B	SE	*P*-value
Level 1 (Firm level)												
Intercept	3.871	0.157	0.000	3.744	0.243	0.000	3.678	0.246	0.000	3.545	0.251	0.000
Firm age (log)	0.033	0.019	0.081	0.038	0.014	0.007	0.057	0.015	0.000	0.056	0.015	0.000
Firm size (log)	0.031	0.009	0.000	0.049	0.007	0.000	0.047	0.006	0.000	0.047	0.007	0.000
Firm R&D intensity (ratio)	40.385	9.188	0.000	42.706	6.880	0.000	45.520	6.842	0.000	46.250	7.015	0.000
Firm marketing intensity (ratio)	0.797	2.402	0.740	-2.004	1.912	0.296	-0.919	1.911	0.631	-1.246	1.983	0.530
Firm ROA (ratio)	2.934	0.657	0.000	3.327	0.495	0.000	3.465	0.494	0.000	3.450	0.503	0.000
International experience (log)	0.010	0.034	0.770	0.020	0.036	0.585	0.211	0.070	0.003	0.205	0.071	0.004
Home-based locally relevant learning (Home-based LRL)				0.520	0.047	0.000	0.524	0.046	0.000	0.201	0.065	0.002
Host-based locally relevant learning (Host-based LRL)				0.106	0.054	0.051	0.101	0.053	0.059	0.116	0.068	0.088
Home-based time-weighted cultural diversity				2.976	1.422	0.037	3.484	1.758	0.049	4.323	2.175	0.048
Home-based time-weighted cultural diversity^2							-7.953	2.683	0.003	-8.617	3.465	0.013
Host-based time-weighted cultural diversity				3.415	1.278	0.008	6.674	2.184	0.002	6.090	2.517	0.016
Host-based time-weighted cultural diversity^2							-9.931	3.098	0.002	-8.634	3.158	0.007
Level 2 (business group level)												
Group diversification	0.043	0.006	0.000	0.036	0.005	0.000	0.035	0.005	0.000	0.035	0.005	0.000
Group internationalization	0.380	0.498	0.447	0.475	0.379	0.210	0.575	0.374	0.126	0.574	0.378	0.130
Level 1 interactions												
Home-based LRL x Home-based time-weighted cultural diversity										2.873	1.407	0.042
Home-based LRL x Home-based time-weighted cultural diversity^2										-5.681	2.216	0.011
Host-based LRL x Host-based time-weighted cultural diversity										3.689	1.488	0.014
Host-based LRL x Host-based time-weighted cultural distance^2										-5.749	1.794	0.002
N	266			266			266			266		
Pseudo R^2	.371			.647			.686			.730		
Deviance	984.75			1,035.82			1,040.61			1,049.30		

[a] Unstandardized regression coefficients, robust standard errors, and *p*-values are shown. Industry-fixed effects are included, but not reported here.
† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Fig. 1 Research framework



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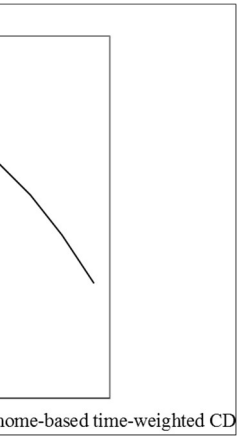

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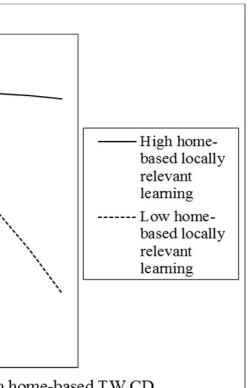

Fig. 3 Quadratic equation graph of host-based time-weighted cultural diversity (CD)

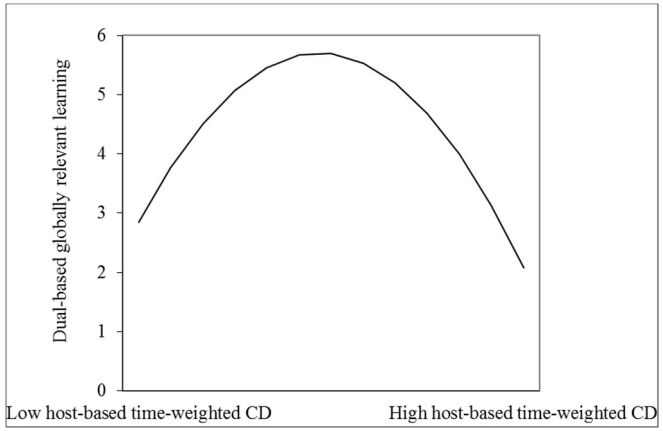

Fig. 5 Quadratic two-way interaction between host-based locally relevant learning and host-based time-weighted (TW) cultural diversity (CD)