

# THE ANATOMY OF ORGANIZATIONAL LEARNING: TOWARDS AN INTEGRATIVE FRAMEWORK OF THE PERFORMANCE EFFECTS OF EXPERIENTIAL AND VICARIOUS LEARNING

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## ABSTRACT

The metaphorical roots in which the bulk of extant research on organizational learning is anchored have often led scholars to place the locus of learning at the level of the firm as a whole. We argue that this may have given rise to an ecological fallacy that conceals much of the variance most conducive to rigorous theorizing on the performance effects of organizational learning. This paper represents a first step in an attempt to develop an integrative theoretical framework of the performance effects of different forms of organizational learning, which distinguishes between two basic organizational levels where learning can occur: the organization as a whole and the business unit (i.e., the industry-firm intersection). First of all, we theorize about *where* learning should take place within the organization – that is, at which of the two above-mentioned organizational levels. Second, we theorize about *how* learning should occur at the level at which it ends up being organized. After distinguishing between two factors – applicability and accessibility – each of which, we argue, is a necessary but insufficient condition for learning to take place, we assess a comprehensive set of alternative forms of learning in terms of the applicability and accessibility of the experience that they allow the focal firm/BU to tap into and, on this basis, formulate predictions about their performance effects.

## 1 INTRODUCTION

The literature on organizational learning constitutes an eclectic collection of research developed from within different disciplines and bound together largely by the intuitive appeal of the concept of organizational learning as a metaphor of learning at the individual level (e.g., Dodgson, 1993; Walsh & Ungson, 1991). As such, it has frequently been criticized for its lack of a unified theoretical framework (e.g., Bapuji & Crossan, 2004; Crossan, Lane, & White, 1999; Dodgson, 1993; Fiol & Lyles, 1985; Huber, 1991; King, 2007; Levitt & March, 1988). Indeed, although countless studies have applied the concept, often on a metaphorical level, to specific organizational settings and phenomena, comparatively little research attention has been devoted to fleshing out the mechanisms underlying the phenomenon of organizational learning itself.

To the extent that such theoretical inquiry *has* been undertaken, its core aim has usually been either to isolate and refine specific facets of the organizational learning process (e.g.,

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Denrell, 2003; Grant, 1996; Levinthal & March, 1993; March, 1991; Walsh & Ungson, 1991) or to review and summarize, rather than integrate and synthesize, the literature more broadly, thus providing a clear overview of the proverbial trees but offering little in the way of helping us see the forest (Argote & Ophir, 2002; Bapuji & Crossan, 2004; Dodgson, 1993; Fiol & Lyles, 1985; Huber, 1991; Levitt & March, 1988; Miner & Mezas, 1996; Schulz, 2002). As a result, “a general theory of organizational learning has remained elusive” (Crossan et al., 1999: 522).

Around the mid-1990s, however, a stream of research emerged that specifically set out to develop such a general theory (Crossan et al., 1999; Hedlund, 1994; Nonaka, 1994; Nonaka & Takeuchi, 1995). Collectively, these studies have come to establish an insightful theoretical framework of organizational learning that focuses on the process through which experience gradually permeates ever larger parts of the firm, moving from the individual to the group level and ultimately ending up at the organizational level. Notwithstanding the valuable insights that it offers, this framework, first of all, focuses on only one of the two key forms of learning – learning from own experience (i.e., experiential learning) – thus leaving us largely in the dark as to the role of learning from the experience of others (i.e., vicarious learning). Most importantly, however, it is a descriptive framework, which, therefore, does not offer clear performance implications. As a result, it has recently been argued that there is “enormous promise in a unified treatment of organizational learning that identifies the conditions under which experience improves, harms, or has no effect on organizational performance” (Argote & Ophir, 2002: 200).

In the present paper, we pursue exactly this, setting course for an integrated theoretical framework that incorporates both experiential and vicarious forms of learning and that specifically aims at making predictions about performance effects. In essence, our theory is predicated on the argument that the metaphorical roots in which the bulk of extant research is anchored have often led scholars to implicitly assume that the locus of learning is situated at the level of the firm as a whole. We argue that this has inadvertently given rise to an ecological fallacy that conceals much of the variance most conducive to rigorous theorizing on the performance effects of organizational learning.

We develop an integrated framework along two key dimensions – the industry and the firm – which, for the sake of simplicity, distinguishes between two basic organizational levels where learning can take place: the level of the firm as a whole and the level of the business unit (BU) (i.e., the industry-firm intersection). In the first part of our theory, we focus on the question of where learning should take place within the organization. We posit that, in deciding where to place the locus of learning, there is a fundamental tradeoff between, on the one hand, the specificity of experience that can be accommodated at a certain organizational level (experience specificity) and, on the other hand, the extent to which there will be duplication of experience within the organization (experience redundancy). We argue that the balance that needs to be struck between these two critically depends on the nature of the organizational task at hand.

Having theorized about *where* in the organization learning should take place for a given task, the second part of our theory addresses the question of *how* such learning can best occur. Specifically, we distinguish between two critical factors underlying the organizational learning process, each of which draws on a different subset of the multidisciplinary literature and is fundamental in determining the performance effects of

learning, yet each of which, in and of itself, is a necessary but insufficient condition for learning to take place: applicability and accessibility. We then assess a comprehensive typology of different forms of learning that our framework allows us to distinguish between in terms of the applicability and accessibility of the experience that they allow the focal firm or BU to tap into and, on this basis, formulate predictions about their performance effects. Finally, we draw on our theory to outline a research agenda for the future, discussing what we believe to be particularly promising areas of inquiry.

## 2 THEORY AND PROPOSITIONS

### 2.1 The Ecological Fallacy in the Existing Literature

The ecological fallacy, or aggregation fallacy, “is a widely recognized error in the interpretation of statistical data, whereby inferences about the nature of individuals are based solely upon aggregate statistics collected for the group to which those individuals belong” (Wikipedia). In statistical terms, it implies biased sampling due to a failure to recognize that the overall sample, in fact, consists of several sub-samples that are distinct along one or more important dimensions. The classic example is the 1950 study by Robinson, in which he showed that there is a positive correlation between the literacy rates of U.S. states and the proportion of immigrants, suggesting at first sight that the average literacy rate of a state increases with the influx of immigrants (Robinson, 1950). At the individual level, however, he found a negative correlation between literacy level and immigrant status, revealing that immigrants, in fact, tended to settle in states with higher average levels of literacy. On the basis of this, he cautioned against drawing inferences about lower levels of aggregation on the basis of aggregate data.

Our theory development below starts from the underlying argument that such an ecological fallacy is likely to have affected the many inferences that have been drawn about the performance effects of organizational learning. Although one can distinguish between many different organizational levels where learning could potentially take place, we will, for the sake of simplicity, focus on two of the most salient ones: the level of the firm as a whole and the level of the BU. Indeed, some learning activity may take place at the level of the firm as a whole, either implying that it occurs at corporate HQ or that it occurs at a lower level and, from there, permeates the rest of the firm. In the former case, the top management team or some corporate staff department may serve as the primary mechanism through which experience is gathered and applied throughout the firm. In the latter, experience may be accumulated by a subunit, such as a center of excellence (Birkinshaw, 1997), which, in turn, transfers it to other areas of the firm.

However, since most firms, especially the relatively large ones that are typically studied, consist of BUs that are embedded in their own industrial contexts<sup>†</sup> and that are, by design, only loosely coupled with each other (Simon, 1969), the learning that takes place within firms may, at least in some instances, be specific to each of these BUs, as some research on intra-organizational learning suggests (see Argote & Ophir, 2002). In line with this (see Felin & Hesterly, 2007), variance decomposition studies have invariably shown that the level of the BU is important in explaining firm performance (e.g., McGahan & Porter,

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<sup>†</sup> Of course, this argument can be extended to firms that organize their subunits along geographic lines. Again, however, we focus on firms that use industry-based departmentalization for the sake of simplicity.

1997; Roquebert, Phillips, & Westfall, 1996; Ruefli & Wiggins, 2003; Rumelt, 1991). This casts doubt on the validity of the implicit assumption that learning can legitimately be conceptualized at the level of the firm as a whole alone (Felin & Hesterly, 2007; Grant, 1996) and highlights the need for research that pursues an answer to the question at what organizational level learning can most fruitfully be engaged in – a dimension of variance that has received hardly any attention in the literature so far. We expect the organizational level at which the firm organizes its learning activity to have an important bearing on the performance effects of these learning efforts and, more specifically, that the most appropriate locus of learning crucially depends on the nature of the task at hand.

The existence of an ecological fallacy in organizational learning research may go a long way in explaining the inconsistent results that have been uncovered. Consider, for instance, research on learning in the context of corporate development, such as acquisitions. This literature is marked by inconsistent findings regarding the relationship between acquisition experience and acquisition performance at the organizational level, with some authors finding a positive relationship (Bruton, Oviatt, & White, 1994; Fowler & Schmidt, 1989), others uncovering an insignificant one (Baum & Ginsberg, 1997; Hayward, 2002; Lubatkin, 1987; Zollo & Leshchinskii, 2004; Zollo & Singh, 2004), and still others finding a U-shaped relationship (Haleblian & Finkelstein, 1999; Zollo & Reuer, 2003). In other words, if learning is, at least partially or in some instances, BU-specific, then measures of organization-wide experience will fail to accurately pick up the actual learning effect for a given task. Figure 1 represents the extreme case: although overall organizational experience may have no, or little, effect on the performance of a given task, it may mask the learning that takes place within individual subunits.

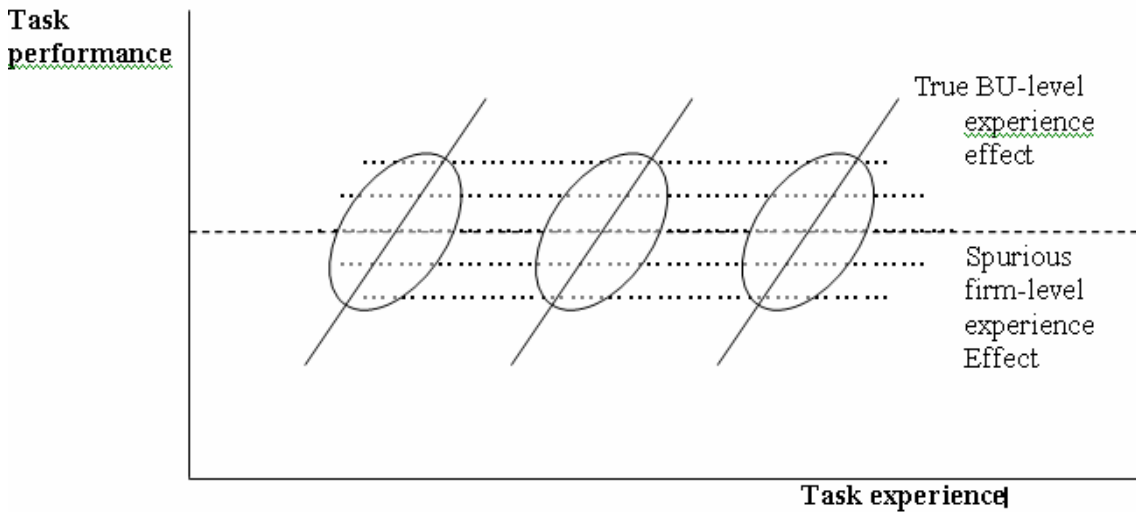


Figure 1 Ecological Fallacy

## 2.2 Transfer Theory

In order to learn effectively, the firm or BU needs to be able to tap into experience – either its own or that of others – that is applicable to the task at hand. As straightforward as this may seem to be, organizational learning research has only recently started to study this issue in-depth (e.g., Finkelstein & Haleblian, 2002; Haleblian & Finkelstein, 1999; Zollo & Reuer, 2003; Zollo & Winter, 2002), although several conceptual inquiries into this issue have appeared in the past (see Levinthal & March, 1993). In this pursuit, scholars have

benefited greatly from insights that originated in transfer theory, which is theory from cognitive psychology originally developed for explaining individual-level learning (see Cormier & Hagman, 1987; Ellis, 1965). Having matured into a well-developed theoretical framework and having spawned a large number of empirically supported findings, organizational scholars have recently started to realize that it offers insights that could potentially enhance the explanatory power of the considerably younger organizational learning framework.

Transfer theory studies the performance effects of transferring prior experience with a given task to a subsequent task. Research in this area typically consists of two-stage experiments – a training stage and a transfer stage – with “the latter used to determine how the training provided during the first stage influenced performance at the second stage” (Finkelstein & Haleblian, 2002: 37). The key insight from transfer theory is that transfer effects can be positive as well as negative, depending on the extent to which the tasks performed during the training and testing stages are similar. Specifically, in order to allow for positive transfer of experience with a prior task to the one at hand, there needs to be sufficient structural similarity between these tasks (Ellis, 1965; Gick & Holyoak, 1987), meaning the presence of shared components that are causally related with performance outcomes. The larger the number of such shared components, the greater the structural similarity and the higher the probability of positive transfer effects (see Tversky, 1977). In case of insufficient structural similarity, in contrast, experience may be generalized from one task to another to which the experience does not apply, potentially implying negative transfer effects.<sup>‡</sup>

Since psychology studies the individual, the question of where the learning actually takes place is clearly not an issue in this field. This individual-level insight has recently been applied at the organizational level, deepening our understanding of the learning process in important ways by showing that dissimilarities between organizational tasks can lead to negative experience transfer, hurting task performance as a result (Finkelstein & Haleblian, 2002; Haleblian & Finkelstein, 1999). However, in line with our earlier argument that, when it comes to learning, a purely holistic treatment of the firm may give rise to an ecological fallacy, we argue that considerably more realistic and fine-grained insights into the phenomenon of organizational learning can be gained by first endogenizing the locus of learning, that is, by studying where learning efforts can best take place within the firm, before turning to the question of how such learning should be engaged in. With respect to the latter, moreover, transfer-theoretic research in psychology has mainly focused on the question of how an individual can learn from his or her own experience, since it is clearly appropriate to conceptualize the individual as a holistic entity. However, upon realizing that it is inappropriate to treat the firm as a holistic learning entity, it becomes clear that organizational learning does not only consist in learning from “own” experience, but may also entail learning from the experience of others within the firm as well as others outside the firm. We contend that this insight is far from trivial, as it represents the foundation for a deeper distinction between different experiential dimensions that can be tapped into through different forms of learning and that, by extension, can be expected to have different performance effects depending on the organizational task at hand.

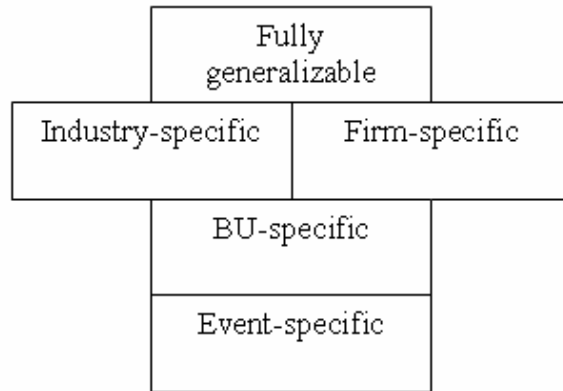
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<sup>‡</sup> Of course, beyond a threshold level of dissimilarity, no transfer will be attempted at all, as the inapplicability of prior experience will be evident.

### 2.3 Where Learning Should Take Place: Organizing Organizational Learning

Our stylized distinction between two key loci of learning – the firm and the BU – provides a basis for theorizing about how learning efforts are different when engaged in at different organizational levels. We define the BU as a subunit of a given firm operating in a given industry. In other words, BUs constitute unique industry-firm intersections. Although a given firm may consist of multiple BUs, each one of them is, to a greater or lesser extent, active in an industry that is distinct from the ones in which the other BUs operate. Along the same lines, although a given industry consists of multiple BUs, each one of them is part of a different firm. In short, therefore, industries consist of multiple firm elements and firms consist of multiple industry elements.

A key difference between learning that occurs at the firm level and learning that occurs at the BU level is the specificity of the experience that the learning efforts result in. Specifically, given these two alternative foci of learning, we can distinguish between five different types of experience in terms of their specificity: experience (1) that is fully generalizable, (2) that is specific to the focal firm, (3) that is specific to the industry in which the focal BU operates, (4) that is specific to the focal BU, and (5) that is event-specific and, therefore, is not generalizable across events. Figure 2 depicts this hierarchy of experience specificity.



**Figure 2 A Hierarchy of Experience Specificity**

If the locus of learning is placed at the firm level – most notably, at the corporate level – then the specificity of the experience that will be accumulated is inevitably lower as compared to when learning efforts are organized at the BU level. The reason is that the corporate level, in case it serves as the locus of learning, encounters a set of organizational tasks that varies among more dimensions than the BU level would. For instance, if the corporate level were in charge of undertaking all the firm’s acquisitions, then these acquisitions would pertain to a variety of BUs and thus, to a variety of different industries. The acquisition experience accumulated at the corporate level would, therefore, be less specific than the experience that would be accumulated at the BU level if the BUs were in charge of undertaking their own acquisitions, since each BU would end up with an industry-specific base of acquisition experience in the latter case. In other words, accumulating experience at the corporate level, rather than at the BU level, potentially implies higher levels of causal ambiguity, that is, less “clarity in the causal relationships

between the decisions or actions taken and the performance outcomes obtained” (Zollo & Winter, 2002: 348; Lippman & Rumelt, 1982). Such causal ambiguity makes it difficult to decide which elements of its broad experience set are applicable to any specific task in the present or the future. In short, the experience specificity that is attainable depends on the organizational level at which the learning activity is organized.

Whereas the level of experience specificity *attainable* depends on where the locus of learning is placed within the firm, the level of experience specificity *required* for effective learning – that is, positive experience transfer – to take place depends on the organizational task at hand. Some tasks may be relatively simple and, as a result, experience with such tasks may be fully generalizable. For instance, negotiation experience may fall in this category. Other tasks may result in experience that is industry- or firm-specific. An example of the former could be R&D experience, since product-innovation technology tends to be industry-specific. An example of the latter may be management experience, since the way a firm can best be run may largely depend on such firm-specific, path-dependent characteristics as organizational culture, structure, and control systems. Finally, some tasks will give rise to experience that is specific along multiple dimensions because of their complexity, that is, because they consist of multiple, interrelated subtasks. For instance, acquisition experience is likely to belong to this category: in order to increase the chances of success for a given acquisition, one will likely need (1) industry-specific knowledge about, for instance, the prevailing technology (e.g., minimum efficient scale is informative about the extent to which economies of scale can be realized) and the focal BU’s positioning within the industry (e.g., its competitive strategy) in order to assess which synergistic opportunities can be fruitfully pursued for the given deal as well as (2) firm-specific knowledge about, for example, the acquirer’s organizational culture to ascertain how the target can best be integrated (e.g., if the parties are considerably different in organizational terms, it may be best to integrate slowly).

Basic transfer theory, as discussed above, teaches us that, in order for positive experience transfer to occur, there needs to be experience that is structurally similar to the task at hand (e.g., Ellis, 1965), an insight that has successfully been applied in the organizational context (Finkelstein & Haleblian, 2002; Haleblian & Finkelstein, 1999). However, more recent developments in this domain tell us that, even in the presence of experience that is structurally similar to the task at hand, positive experience transfer may be impeded if it is embedded in a broader experience base that makes it difficult to isolate the structurally similar elements from those that are not (e.g., Elio & Anderson, 1981, 1984; Gick & Holyoak, 1987; Nitsch, 1977; Reber, Kassin, Lewis, & Cantor, 1980). We argue that the firm can alleviate this problem by placing the locus of learning at the organizational level that can best accommodate the level of experience specificity required, such that the scope for negative experience transfer is minimized from the start. As such, we argue that deciding on the most appropriate organizational level to place the learning activity for a given task is a crucial first step in optimizing the organizational learning process. This locus of learning determines the level of experience specificity that is attainable, which, in turn, has an important influence on the extent to which subsequent experience accumulation can lead to positive experience transfer.

The above suggests that the firm needs to match the experience specificity required with that which is attainable by placing the responsibility for a given task and thus, the locus of learning, at the organizational level that can accommodate the experience specificity

required. Organizing all learning activity at the corporate level, as has been implicitly assumed to be the case in most studies to date, is likely to result in suboptimal learning, since the corporate level is unlikely to be able to accommodate the levels of experience specificity required for effective capability development for certain organizational tasks, particularly the more complex, strategic ones. Nevertheless, locating all learning activity at the BU level is likely to be suboptimal as well, not only because there are limits to the amount of learning that can be undertaken effectively by any given subunit due to bounded rationality (Cyert & March, 1963; March & Simon, 1958), but because some types of experience may be more efficiently located at the corporate level such that not all the individual BUs need to engage in these experience accumulation efforts themselves. In other words, placing the locus of learning at the corporate level may be optimal for some organizational tasks because it can avoid needless duplication at the BU level.

These considerations point to a distributed locus of learning as being the most fruitful way to organize organizational learning within the firm, with the learning activity for different tasks organized at different organizational levels. To the extent that experience is accumulated at the corporate level, it can, in principle, only lead to positive experience transfer in case this experience is fully generalizable or firm-specific. In contrast, experience accumulation at the BU level can naturally accommodate fully generalizable, industry-specific, firm-specific, and BU-specific experience, although placing all the learning activity here would result in needless duplication of experience for those tasks that do not require the relatively high level of experience specificity that the BU level can offer.

We therefore posit that, in order to optimize the organizational learning process within the firm, there needs to be a match between the level of experience specificity required for a given task and the organizational level at which this task experience is actually accumulated. Thus, fully generalizable and firm-specific task experience may best be accumulated at the corporate level, because not only can the corporate level accommodate this experience specificity, but locating it at the corporate level avoids needless duplication in multiple individual BUs throughout the firm. Formally:

*Proposition 1: For tasks that require fully generalizable and/or firm-specific experience, the potential for positive experience transfer will be maximized if it is organized at the corporate level.*

In contrast, industry-specific and BU-specific experience should be accumulated at the BU level, since the corporate level cannot accommodate this experience specificity. If it were, instead, accumulated at the corporate level, the probability of negative experience transfer would be needlessly high due to the causal ambiguity involved. Furthermore, locating the locus of learning at the BU level for these tasks will not lead to a duplication of experience, since the experience required to effectively undertake these tasks is different across BUs. Hence:

*Proposition 2: For tasks that require industry-specific and/or BU-specific experience, the potential for positive experience transfer will be maximized if it is organized at the BU level.*



## 2.4 How Learning Should Take Place: The Performance Effects of Organizational Learning

We now turn to the second question that our theoretical framework aims to address: once it has been decided at what organizational level learning activity for a given task can best be organized, how can this learning activity best be engaged in? As touched upon earlier, the literature on organizational learning is an eclectic one. Different disciplines have approached the phenomenon from different angles and, therefore, have yielded different insights into the conditions required for learning to take place. We focus on two broad subsets of the literature, which lead us to identify two key factors that, together, shed light on the performance effects of organizational learning: applicability and accessibility.<sup>§</sup> Our theory development below will primarily deal with the question of how learning can be undertaken at the level of the BU, since learning at the level of the firm as a whole is simply a less complex version of this case.

### 2.4.1 Experience Applicability

Based on our earlier definition of the BU as a subunit of a given firm operating in a given industry, we can distinguish between four different ways in which the focal BU can learn: (1) from its own experience (i.e., intra-BU experiential learning), (2) from the experience of another BU within the same firm but another industry (i.e., intra-firm/inter-industry vicarious learning), (3) from the experience of another BU within the same industry but another firm (i.e., intra-industry/inter-firm vicarious learning), and (4) from the experience of another BU within another firm and another industry (i.e., inter-industry/inter-firm vicarious learning). Figure 3 presents these different forms of learning in a two-by-two matrix.

	<i>Industry j=1</i>	<i>Industry j≠1</i>
<i>Firm i=1</i>	BU-specific experience	Firm-specific experience
<i>Firm i≠1</i>	Industry-specific experience	Fully <u>generalizable</u> experience

**Figure 3 Four Forms of Learning Available to the Business Unit**

First of all, the focal BU, located in firm  $i=1$  and industry  $j=1$  (i.e.,  $BU_{ij} = BU_{1,1}$ ), can learn from its own experience (experiential learning). In this case, the experience on the basis of

<sup>§</sup> Throughout the paper, we will not explicitly distinguish between tacit and explicit knowledge, though our focus on experience implies that the former figures most prominently in our inquiry. This is in accordance with the observation that only tacit or experiential knowledge can provide the firm with a sustainable competitive advantage (e.g., Barney, 1991; Grant, 1996).

which learning takes place implies a high probability of positive experience transfer, since it can accommodate fully generalizable, industry-specific, firm-specific, and BU-specific experience. In principle, negative experience transfer can only occur if there are structural dissimilarities between different instances of the same task (i.e., if experience is event-specific) (see Finkelstein & Haleblan, 2002; Haleblan & Finkelstein, 1999).

Second, the focal BU might attempt to learn from the experience of another BU within the same firm but within another industry,  $BU_{1,\neq 1}$ . In such cases of intra-firm/inter-industry vicarious learning, positive experience transfer can be expected in case the experience in question is either fully generalizable or firm-specific, because of structural similarity along the firm dimension (i.e., the focal BU is part of the same firm).

Third, the focal BU may attempt to learn from the experience of another segment within the same industry but within another firm,  $BU_{\neq 1,1}$ . In such cases of intra-industry/inter-firm vicarious learning, positive experience transfer can be expected in case the experience in question is either fully generalizable or industry-specific, because of structural similarity along the industry dimension (i.e., the focal BU is part of the same industry).

Finally, the focal BU might attempt to learn from the experience of another BU located within another firm as well as within another industry,  $BU_{\neq 1,\neq 1}$ . In such cases of inter-industry/inter-firm vicarious learning, positive experience transfer can only be expected in case the experience in question is fully generalizable. Table 1 summarizes the above.

**Table 1 Assessment of the Experience Applicability of the Four Forms of Learning Available to the Business Unit**

	Fully generalizable	Industry-specific	Firm-specific	BU-specific	Event-specific
Intra-BU experiential learning	+	+	+	+	-
Intra-firm/inter-industry vicarious learning	+	-	+	-	-
Intra-industry/inter-firm vicarious learning	+	+	-	-	-
Inter-industry/inter-firm vicarious learning	+	-	-	-	-

On the basis of the above discussion, we formulate the following set of assumptions:

*Assumption 1a: Intra-BU experiential learning will lead to positive experience transfer if the task experience concerned is fully generalizable, industry-specific, firm-specific, or BU-specific.*

*Assumption 1b: Intra-firm/inter-industry vicarious learning will lead to positive experience transfer if the task experience concerned is fully generalizable or firm-specific.*

*Assumption 1c: Intra-industry/inter-firm vicarious learning will lead to positive experience transfer if the task experience concerned is fully generalizable or industry-specific.*

*Assumption 1d: Inter-industry/inter-firm vicarious learning will lead to positive experience transfer if the task experience concerned is fully generalizable.*

#### **2.4.2 Experience accessibility**

Experience applicability is decisive in terms of the performance effects of the different forms of learning available to the BU, since the first consideration in specifying a fruitful “learning strategy” is whether, for a given form of learning, there is any scope for positive experience transfer at all. If not, then there is clearly no reason to pursue this form of learning. That said, although applicability is a necessary condition for learning to take place, it is not a sufficient one. Specifically, even highly applicable experience is of little use if it cannot be effectively accessed by the focal BU.

Drawing an analogy with statistical theory, the concept of applicability as defined above in some ways resembles that of validity: the extent to which a measure, on average, actually measures the underlying theoretical construct. Experience that is inapplicable to the task at hand is like a statistical measure that is invalid with respect to the underlying construct that is supposed to be measured. If the experience that is tapped into is applicable, then, on the whole, this experience base should enable the focal BU to enhance its task performance. However, a measure that is, on the whole, “valid” is of little use if the individual observations that make it up are measured with great error; that is, measurement error decreases the measure’s reliability. In the context of our paper: a form of learning that could, in principle, lead to positive experience transfer becomes much less promising if it does not allow the access that is required to accurately tap into the experience. Hence, although applicability determines the sign of the performance effect of a given form of learning, accessibility determines its magnitude.

The extent to which the focal BU can accurately tap into experience crucially depends on which form of learning is employed. In general, one can distinguish between two types of learning – contact learning and mimetic learning – where the former allows for direct contact with the source of experience and the latter one does not (Miner & Haunschild, 1995). Since such direct contact has been argued to be a critical determinant for effective experience transfer (e.g., Nonaka & Takeuchi, 1995; Polanyi, 1967), we employ this distinction to conceptualize experience accessibility.

Clearly, in the case of intra-BU experiential learning, experience accessibility is highest, since the BU itself has accumulated this experience in the past. Although firms do tend to “forget” over time (Hedberg, 1981), it is nevertheless clear that intra-BU experiential learning presents the most comfortable position to be in in terms of experience accessibility. Intra-firm/inter-industry vicarious learning, in contrast, represents a more challenging situation, since the intra-firm boundaries that separate semi-autonomous subunits have been found to hamper experience transfer in a variety of settings (e.g., Schulz, 2001; Szulanski, 1996; Tsai, 2002). However, effective vertical and lateral coordination within the firm (Tsai, 2002) will usually allow for the possibility of contact learning or, at least, for so-called “broadcast transmission” (Miner & Haunschild, 1995), which implies that the experience may travel to the focal BU through corporate headquarters.

In the case of intra-industry/inter-firm and inter-industry/inter-firm vicarious learning, however, the focal BU will often have no other option but to rely on mimetic learning, implying a low experience accessibility. Any experience transfer that occurs will usually be based on the inferences that the focal BU is able to draw from observing the behavior of the other BU. Although some experience may indeed be transferred through industry associations, board interlocks, and the like, competitors – in the case of intra-industry/inter-firm vicarious learning – will usually be reluctant to divulge any information that they consider valuable, for obvious reasons. Although such rivalry will clearly not be an impediment to experience transfer in the case of inter-industry/inter-firm vicarious learning, there are also fewer points of potential contact in this situation as compared to intra-industry/inter-firm vicarious learning. Moreover, the focal BU is simply much less likely to be aware of the experience that other BUs outside its industry and outside its firm possess. Thus, although these two forms of learning may differ in terms of the accessibility that they provide, we see little theoretical justification to make distinguish between them along this dimension. Table 2 summarizes the above.

**Table 2 Assessment of the Experience Accessibility of the Four Forms of Learning Available to the Business Unit**

	Mimetic learning	Contact learning	Experiential learning
Intra-BU experiential learning			X
Intra-firm/inter-industry vicarious learning		X	
Intra-industry/inter-firm vicarious learning	X		
Inter-industry/inter-firm vicarious learning	X		

Based on the above, we formulate the following assumption:

*Assumption 2: Experience accessibility is highest for intra-BU experiential learning, lower for intra-firm/inter-industry vicarious learning, and lowest for intra-industry/inter-firm and inter-industry/inter-firm vicarious learning.*

**2.4.3 Performance Effects**

Having built on extant theory to formulate several basic assumptions about experience applicability and accessibility for each of the four forms of learning available to the focal BU, we will now integrate them in pursuit of deeper insight into the performance effects of these different forms of learning. It follows from the analysis presented above that the performance effects of learning can be expected to be optimized in case the focal BU has its own task experience to draw upon, since both applicability and accessibility are highest in the case of intra-BU experiential learning. Hence, we formulate our first proposition as follows:

*Proposition 3: In the presence of applicable task experience at the focal BU level, intra-BU experiential learning will have a higher probability of leading to strong positive experience transfer than any of the vicarious forms of learning.*

Over time, as the focal BU accumulates an ever larger amount of task experience – through experiential learning, vicarious learning, or both – there will, at some point, be little reason to engage in any additional learning, since a capability will have been developed and the task will have become routinized.\*\* In order to gain a deeper understanding of the performance effects of learning, it seems most interesting, therefore, to consider the situation in which the focal BU lacks relevant task experience of its own and thus, is forced to rely upon different forms of vicarious learning. This will be our focus below.

Regarding these vicarious forms of learning, inter-industry/inter-firm vicarious learning can be expected to yield inferior outcomes for any type of experience, since it scores lowest on both applicability and accessibility. Thus, we posit:

*Proposition 4: In the absence of applicable task experience at the focal BU level, inter-industry/inter-firm vicarious learning will have a lower probability of leading to positive experience transfer than any of the other forms of vicarious learning.*

In light of our earlier arguments, the choice between intra-firm/inter-industry vicarious learning and intra-industry/inter-firm vicarious learning depends critically on the organizational task at hand. In case of a relatively simple task that results in experience that is more or less fully generalizable, it would be optimal to opt for intra-firm/inter-industry vicarious learning: although intra-industry/inter-firm vicarious learning would lend itself equally well in terms of applicability, accessibility will typically be lower. Furthermore, in case of an organizational task that primarily results in experience that is firm-specific, it is preferable to rely upon intra-firm/inter-industry vicarious learning, since it scores higher on applicability (as well as on accessibility) in this case. More formally:

*Proposition 5: In the absence of applicable task experience at the focal BU level, intra-firm/inter-industry vicarious learning will have the highest probability of leading to the strongest positive experience transfer in the cases of fully generalizable and firm-specific task experience.*

Along the same lines, when the task at hand primarily results in experience that is industry-specific, it is advisable to opt for intra-industry/inter-firm vicarious learning:

*Proposition 6: In the absence of applicable task experience at the focal BU level, intra-industry/inter-firm vicarious learning will have the highest probability of leading to the strongest positive experience transfer in the case of industry-specific task experience.*

The above-mentioned propositions attempt to provide some preliminary guidance as to which form of learning the focal BU can best rely upon in case the task experience concerned is fully generalizable, industry-specific, or firm-specific. We do not formulate

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\*\* For the sake of simplicity, we disregard here the possibility of experience depreciation over time due to obsolescence, as may be the case with technological experience. Hence, we choose to leave the time dimension out of our analysis, so as to enable a clearer focus on the other dimensions that we have addressed.

any propositions for cases in which the task experience concerned is event-specific, since such situations would inherently not be conducive to any learning at all. However, we have so far remained silent about which form of vicarious learning could be expected to optimize learning in case the experience concerned is BU-specific.

Organizational tasks that are relatively complex – that is, consist of multiple interdependent subtasks – are most likely to require experience that is BU-specific in order for learning to be successful (i.e., in order to allow for positive experience transfer). The number and interdependence of the subtasks of which they consist render such tasks causally ambiguous, implying a lack of “clarity in the causal relationships between the decisions or actions taken and the performance outcomes obtained” (Zollo & Winter, 2002: 348; Lippman & Rumelt, 1982). As a result, it will be difficult, if not impossible, to determine for each of the subtasks involved whether they require industry-specific, firm-specific, or merely fully generalizable experience. Under such circumstances it would be dangerous to rely blindly on intra-industry/inter-firm or intra-firm/inter-industry vicarious learning, because any positive experience transfer that may occur could be outweighed by negative transfer of experience that should have been tapped into from another source in order for positive transfer to take place (Gick & Holyoak, 1987).

The example that we touched upon earlier – acquisitions – may serve as a useful illustration here. Some of the experience that is required in order to learn how to do acquisitions will likely be industry-specific in that the BU that is undertaking the acquisition, or in which the acquisition will be integrated, will usually need industry-specific knowledge about, for instance, technology in order to determine the synergistic potential inherent in the acquisition. However, if, on this basis, the BU were to decide to engage in intra-industry/inter-firm vicarious learning (as Proposition 4 suggests), there may well be negative transfer of experience that is firm-specific, along with positive transfer of the industry-specific experience that the BU is after. After all, it will also require firm-specific experience about, for example, the culture and control systems of the acquiring firm to determine how the target can be integrated successfully.

Thus, when the experience required is BU-specific the focal BU will have to adopt a learning approach that maximizes positive experience transfer along one dimension, while satisficing along the other, in order to make sure that positive experience transfer along one dimension is not canceled out by negative experience transfer along the other dimension. In principle, therefore, it would be advisable to engage in intra-firm/inter-industry vicarious learning so that firm-specific experience can be tapped into as accurately as possible (given the high accessibility that this form of learning affords), but the focal BU should attempt to learn specifically from the BU within the same firm that is structurally most similar along the industry dimension.

If such an experienced BU is unavailable, the focal BU can, instead, engage in intra-industry/inter-firm vicarious learning (in which case accessibility will typically be lower), but it should attempt to learn specifically from a BU within the same industry that is structurally most similar along the firm dimension (i.e., with a similar organizational culture or any other characteristic that is deemed crucially important in terms of enabling positive transfer of requisite firm-specific experience). If such a BU is not available either, the focal BU will likely be unable to sufficiently guard against negative experience transfer

and it may be advisable not to engage in any learning at all – after all, no experience transfer would clearly be preferable to negative experience transfer. Thus, we propose:

*Proposition 7: In the absence of applicable task experience at the focal BU level and in the case of BU-specific task experience,*

- (a) intra-firm/inter-industry vicarious learning will have the highest probability of leading to the strongest positive experience transfer if the focal BU is able to learn from another BU within the same firm that is sufficiently structurally similar along the industry dimension;*
- (b) If such an intra-firm BU is unavailable, intra-industry/inter-firm vicarious learning will have the highest probability of leading to the strongest positive experience transfer if the focal BU is able to learn from another BU within the same industry that is sufficiently structurally similar along the firm dimension;*
- (c) If such an intra-industry BU is not available either, the focal BU should not engage in any vicarious learning at all.*

### **3 DISCUSSION AND SUGGESTIONS FOR FUTURE RESEARCH**

We started off this paper by arguing that the organizational learning literature may have fallen victim to an ecological fallacy through the widespread implicit assumption that the locus of learning is located at the corporate level. By distinguishing between different levels of experience specificity, we have attempted to demonstrate that it is indeed not necessarily optimal for firms to place the locus of learning at the corporate level. Only in case the task at hand requires fully generalizable or firm-specific experience, is it meaningful to organize experience accumulation at the corporate level. In case the experience required for performing a task is industry-specific or BU-specific, as will often be the case for complex, strategic tasks that consist of multiple subtasks, experience accumulation can best be organized at the BU level.

For this latter case, we have provided a comprehensive typology of the forms of learning that are available. Subsequently, we have relied upon two key factors underlying the learning process – applicability and accessibility – to assess under which circumstances each of these forms of learning can be expected to maximize its performance effect. In essence, therefore, we posit that effective capability development requires that the firm first decide where in its organization it should organize the learning efforts for a given organizational task, before it turns to the question of how this learning can best be undertaken. Hence, although the literature has argued that, in order to be able to cope with higher levels of experience specificity, it may be necessary to invest in deliberate learning mechanisms, such as experience codification (Zollo & Winter, 2002), we posit that an alternative solution is for firms to vary the locus of learning for different tasks along the lines described in this paper.

An important avenue for future research, we believe, would be to find ways of determining the level of experience specificity that different tasks require, since this, from our perspective, is key to determining where the locus of learning for that task should be placed within the firm. Furthermore, it might be interesting to incorporate a third dimension in the framework outlined above – time. Although time is a crucial dimension in the context of learning, since experience may sometimes be subject to obsolescence, we have, for now,

decided to omit this from our framework for the sake of simplicity. Another suggestion for future research would be to incorporate more dimensions of experience accessibility, thus moving beyond the structural dimension that we have focused on in the current version of the paper to, for example, those that pertain to important characteristics of the underlying knowledge (e.g., tacit versus explicit).

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