

# Debates around the nature of knowledge transfer: how well do we know about the construct?

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## Abstract

**Purpose** – Studies have shown that organizations that are capable of effectively transferring knowledge are often more productive than others. At the same time, there is increasing ambiguity regarding how the nature of knowledge transfer affects performance. The purpose of this paper is to review the literature on the nature of knowledge transfer and to understand why it remains a hindrance to most organizations, even now. This conceptual paper tries to identify the major debates surrounding the nature of knowledge transfer in an organization. The challenges and opportunities facing research on knowledge transfer are also elaborated.

**Design/methodology/approach** – This conceptual paper is structured to first provide a brief summary of the construct of knowledge transfer and then provide a detailed account of research that highlights the major findings regarding the nature of knowledge transfer and their relation to the current themes. A selective review of the literature was carried out in this paper instead of a meta-analysis. The papers were identified through popular databases. The authors also examined the references of selected papers to provide a comprehensive review of the construct.

**Findings** – The debate about codification of knowledge that has stimulated the academic community in organizational studies is still in its infancy. The other debates that have been discussed in this paper have either reached their peak or have given way to newer debates. A clear understanding of the significance of the nature of knowledge transfer is very important at this juncture. The model developed toward the end of the paper assumes a path in this direction. The authors also discuss how research on knowledge has both deepened and expanded the authors' understanding of knowledge transfer since March and Simon (1958).

**Originality/value** – The debate in the field of organizational studies around the nature of knowledge transfer has been occurring for some time. However, there has not been any final consensus on the nature of knowledge transfer. While looking at these debates with a critical eye, the authors may appear to be cynical about the prospect of an end to these deliberations. The authors conclude the paper with a model that examines knowledge transfer from a broader perspective that encompasses the various theoretical perspectives.

**Keywords** Absorptive capacity, Tie strength, Multi-level, Debates on knowledge transfer, Relationship between source and recipient, Tacit and explicit knowledge

**Paper type** Conceptual paper

## Introduction

When Peter Drucker introduced the term “knowledge economy” in 1969, little did we know that his emphasis was on the growing dependence of creation and transfer of knowledge on the economic performance of individuals, organizations and countries would reach to its current state. Over the past five decades, there is a growing recognition among scholars that organizations that are capable of transferring knowledge effectively are often more productive than others (de Zubielqui *et al.*, 2019; Mostafa and Klepper, 2017; Gil and Carrillo, 2016; Argote, 2012; Hansen, 2002; Argote and Ingram, 2000; Baum and Ingram, 1998; Nahapiet and Ghoshal, 1998; Kogut and Zander, 1992; Argote *et al.*, 1990; Arrow, 1974).



However, against this widely held belief, [Szulanski et al. \(2016\)](#) published a study that showed how organizations were failing to manage their knowledge transfer mechanisms, thereby, resulting in the loss of valuable practices and capabilities that they had gained over the years. In accordance with their findings, other studies during the same period also reached the conclusion that the nature of knowledge that allows for an effective transfer is still ambiguous and elusive ([Reus et al., 2016](#); [Sarala et al., 2016](#)). Moreover, the nature of knowledge transfer itself opens up a plethora of question for further scrutiny when we try distinguishing between “explicit” and “tacit” knowledge ([Krylova et al., 2016](#)). Organizational learning scholars like [Argote and Miron-Spektor \(2011\)](#) had opened up another debate around nature of knowledge transfer through their findings that knowledge was embedded in multiple repositories such as individuals, routines and transactive memory systems in an organization, and that transfer of knowledge between levels was difficult. With the added complexity of multi-level transfer, it becomes increasingly certain that the nature of knowledge transfer, if not correctly understood, can in fact lead to further confusion and that affect organizational knowledge flow ([Nonaka and Von Krogh, 2009](#)).

A lot of chaos also prevails in terms of the usage commonly used terms in the knowledge management literature, such as knowledge sharing, knowledge dissemination, and how it differentiates from knowledge transfer. To better communicate the scope of this research, it becomes important for us to identify the boundary that distinguishes our work from other reviews on knowledge flow. As defined by [Bock et al. \(2005\)](#), knowledge sharing is about an individual’s willingness to share with others his/her created or acquired knowledge. Sharing is a voluntary act and implies a conscious move by an individual who participates in the exchange without any obligation to do so. Knowledge dissemination is the distribution of information among group members. It is essentially a sub-process of organizational learning that comprises of other sub-processes, such as knowledge acquisition, information interpretation and organizational memory ([Huber, 1991](#)). We define knowledge transfer as exchanges of organizational knowledge between a source and a recipient ([Szulanski, 1996](#)) that takes into consideration the fact that knowledge transfer is discretionary i.e. individuals are selective when it comes to transferring knowledge to others. As [Reagans and McEvily \(2003\)](#) rightly pointed out, “Understanding why individuals choose to transfer knowledge in some cases but not others is an important precursor to explaining successful knowledge transfer.” It is possible that knowledge transfer involves a cost to the knowledge source, as the source spends time and effort in helping the recipient to understand the knowledge. Taking a broader perspective, we agree with [Guo et al. \(2018\)](#) in *VINE Journal of Information and Knowledge Management Systems (VJIKMS)* looked at three aspects of knowledge transfer (KT): source and receiver of knowledge, context surrounding the transfer and receiver’s purpose of absorbing and reusing the knowledge. The objective of this paper is to review the literature on the nature of knowledge transfer, to resist and reassess the discussions surrounding the debates on knowledge transfer, and to highlight emergent themes of knowledge transfer research and its limitations. Based on a systemic review, our paper also proposes a conceptual framework that can be used to organize the research linking nature of knowledge transfer. The next section provides a detailed account of the methodology adopted in identifying the extant literature on knowledge transfer relevant to our study.

### Method

We conducted a selective review of the literature instead of a meta-analysis, primarily because the construct “knowledge transfer” has been used extensively in various disciplines from multiple dimensions. Drawing from [Durst, Aggerstam and Fernhaf \(2015\)](#) review and carefully following the principles detailed in [Jensson et al. \(2011\)](#), a research plan was

developed and the four-step approach that helped us in defining the scope of the study and ensuring a representative coverage of relevant studies (Phelps *et al.*, 2012). As the first step, our focus was on taking stock of what we knew about the nature of knowledge transfer, we followed previous reviews with a similar objective. We limited our review to studies in economics, management, psychology and sociology published until August, 2018. Second, we limited our research to studies published in top-ranked journals. We developed this list by identifying top-ranked journals in the relevant fields in published journal rankings. Third, we searched the titles and abstracts of these journals by using the combination of keywords indicative of the term “knowledge transfer.” The search yielded 254 articles. Fourth, using independent reviewers, we assessed the articles for relevance, and we removed 156 articles from the original shortlist. Finally, we performed a detailed content analysis of each study to confirm relevance, resulting in a set of 89 articles. We also made it a point to examine the references of the selected articles to locate highly cited papers and books that the journal databases might not have captured.

The remainder of the article is organized as follows. In the next section, we provide a review of the construct “knowledge transfer,” and some of the important debates surrounding knowledge transfer. We then examine each of these debates and how various factors affecting knowledge transfer have contributed to these debates. Finally, we provide recommendations on how research should proceed to address the unexplored topics and other limitations of extant research on knowledge transfer. Through synthesis and critical evaluation of six decades of research, we hope to foster a better understanding of and increased knowledge about knowledge transfer.

### Knowledge transfer

To understand the “nature of knowledge transfer,” one needs to know how knowledge has been defined by organizational theorists. At one end of the spectrum, scholars defined knowledge as subsisting in the actions of the organization – including routines, standard operating procedures, processes, products, databases and technologies (Levitt and March, 1988). At the other end, other theorists took the view that knowledge exists as the beliefs and values of the members of the organization and is context-specific and dynamic (Kogut and Zander, 1992). For Davenport and Prusak (1998), knowledge was:

[...] a fluid mix of framed experiences, values, contextual information, and expert insights that provides a framework for evaluating and incorporating new experiences and information. It originates in and is applied in the minds of knowers (p. 5).

As seen here, knowledge is a concept difficult to define, particularly when scholars take polar opposite positions (Hargadon and Fanelli, 2002). The definitional ambiguity that surrounds the concept of knowledge was not something new and had started with the early writings of March and Simon (1958). They held the view was that organizations accumulate knowledge through the process of organizational learning and that it was beyond the individual embodiment of knowledge. Though there were opposing views to this line of reasoning, it took three decades for Simon (1991) to formally proposed counter-argument that knowledge resides exclusively in individuals, contradicting the beliefs of former organizational theorists. Grant (1996) further extended this argument by stating that knowledge being a scarce resource in organizations, it was costly to replicate and difficult to transfer, and hence, organizations could only integrate the knowledge residing within the individuals rather than transfer, which made it less efficient. To further illustrate this, let us take the case of two researchers – one a psychologist and another an economist. They come together to write a scientific paper together. It is quite likely that the psychologist has no

understanding of the mathematical equations and that the economist has little understanding of psychological theories. According to Grant (1996), the efficiency was maximized, not by the psychologist learning everything that the economist knew and the economist learning everything that the psychologist knew; instead, both reached their peak efficiency when the economist's knowledge in the domain of economics was integrated with the psychologist's knowledge of psychology through meaningful interactions and detailed discussions that lead to elaborated experiences (Majchrzak *et al.*, 2012). Most importantly, the shared mental models thus, created minimized the time spent in transferring the knowledge between them through reading papers and documents that were in codifiable form (Huang *et al.*, 2014). It is important to distinguish here the difference between codified and tacit knowledge for better understanding of the construct knowledge transfer.

### Debates around tacit knowledge transfer

In 1966, Polanyi wrote a classic article about the moot point that a person knew more than what was told. Though it seemed rather obvious at the beginning, on further contemplation it became clear that Polanyi was recognizing the fact that individuals had knowledge that was non-verbalized, unable to be articulated, intuitive and hard to express. Polanyi (1966) called this knowledge "tacit." Nonaka and Takeuchi (1995) later defined tacitness as the personal knowledge embedded in individual experiences and intangible factors such as personal belief, perspective and value systems. Nonaka and Kanno (1998) further extended this logic by distinguishing explicit knowledge from tacit by emphasizing the tangible and codifiable nature of explicit knowledge. This set the stage for an ongoing debate on codified and uncoded knowledge. The debate started with the publication of an article in a special issue of *Industrial and Corporate Change* by Cowan, David and Foray in 2000. Their argument stemmed from Nonaka and Takeuchi's (1996) Socialization, Externalization, Combination, Internalization (SECI) model that if people invest time, effort and resources, it is possible to transform tacit to explicit. This article later turned out to be the cornerstone of all subsequent discussions on the topic of tacit knowledge transfer, although it was later criticized for creating a divide between tacit and codified knowledge and making it a necessary condition to distinguish both (Balconi *et al.*, 2007). Those opposing the contribution of Cowan *et al.* (2000) included Johnson *et al.* (2002), who argued that it was difficult to separate tacit (uncodified) and explicit (codified) knowledge and held the view that it was impossible for a body of knowledge to be completely converted to explicit form without losing some of its original characteristics. Nonaka and von Krogh (2009) made it more intriguing through their finding that explicit and tacit knowledge were certainly not two distinct types of knowledge. When we looked back at the earlier works of Williamson (1975), we could find some merit in these arguments. Taking cues from bounded rationality theory, Williamson (1975) had constructed his argument that individuals were restricted in two ways when it came to knowledge transfer. Firstly, neuro-physiological limits put a cap on the amount of information received, stored and processed by an individual. Secondly, language limits the ability of an individual to articulate all their knowledge and feelings. One can safely assume that Williamson was referring to the tacitness of knowledge in his arguments. For example, if someone tried to manufacture a low-end mobile phone based on available expertise, the knowledge required would be less tacit than making a highly sophisticated high-end smartphone (Chuang *et al.*, 2016). Referring back to the work of Polanyi (1966), Williamson (1975) did not see tacit and explicit as independent but as complementary. Nonaka and Takeuchi (1995) classic work, "The Knowledge-Creating Company" brought this debate into active discussion through their proposition that tacit knowledge can get converted to explicit knowledge through a process of standardization

expounded through their knowledge conversion model. Davenport and Prusak (2000) further triggered this debate with their assertion that tacit must become explicit to get captured. Notwithstanding, Lubit (2001) brought some fresh light into this debate with their viewpoint that each type of knowledge served a different function and that it was not necessary to convert one to other. To illustrate further, let us consider a case in Leonard-Barton's (1995) study. It discussed the case of EL products (Cummings, 2003), a company that manufactured electro-luminescent lamps. EL products was in search of the latest technologies to remain competitive. Keeping this focus, it acquired another company, Grimes, which had a strong reputation for its dust-free lamp-making technology. After the acquisition, equipment, documents and other physical assets of Grimes were transferred to the acquirer. EL products then felt that they had successfully transferred the dust-free lamp-making technology. They were soon to realize that they had failed to replicate the routines used by Grimes employees to reduce dust in the production process, which was integral to the success of Grimes' dust-free lamp-making technology. What became evident from this case was that sometimes tacitness may present itself as identifiable offerings or in routines, structures, procedures or processes (Tece, 2000). In the case of EL products, they discovered the importance of tacit knowledge to Grimes dust-free lamp making technology when they started experimenting with the explicit complement. In Polyani's (1966) words, the tacit is known only through an experience of the explicit component. The failure of EL products was in gaining access to Grimes' internalized knowledge. In other words, knowledge transfer would take place when "[...] the norm [routine] is imported and the absence of disagreement and miscues implicitly affirms that all members accept it" (Gersick and Hackman, 1990, p. 76). In the case of EL products, its management failed to recognize that knowledge transfer was not restricted to transfer of explicit knowledge alone, but tacit knowledge too. This raised the question of what influences individual's motivation to invest in codification, thereby affecting the ease and efficiency of knowledge transfer. In other words, to better understand how the tacit-explicit dimensions influence knowledge transfer, researchers need to endogenize this aspect of knowledge as a variable to be explained by other dimensions of knowledge. Extant research provides little insight into these questions, making this area ripe for future research.

### Debates around the parties involved in knowledge transfer

We now turn our attention to the research examining the relational properties of the source and recipient of knowledge transfer that have found trust in tie strength, proximity/similarity between the two parties to be the prominent factors.

#### Trust

Research has proven that trust is a necessary requirement for knowledge transfer (Park and Lee, 2014; Lewis and Weigert, 1985) and there is considerable evidence that supports the idea that relationships based on trust lead to greater knowledge transfer (Chen *et al.*, 2014; Dirks and Ferrin, 2001). Though trust was also found to reduce the cost of knowledge transfer (Sankowska, 2013; Zaheer *et al.*, 1998), it was observed by Borgatti and Cross (2003) that transfer, took place at the benevolence of the source because the donor decides whether to transfer the knowledge or not. Similarly, the knowledge seeker was taking a risk by putting his reputation at stake when admitting ignorance to the source. These two costs involved can act as a deterrent to trust building between the source and recipient. To further support this argument, Edmondson (1999) had found that defensive behaviors from both the donor and recipient owing to lack of trust can block the transfer of knowledge. Although trust had shown to positively correlate with effective knowledge transfer (Tsai and Ghoshal,

1998), the reasoning for this anomaly may come from the work of [Levin and Cross \(2004\)](#) that established trust as a multi-level construct – benevolence-based trust and competence-based trust. The importance of competence-based trust becomes important when we look at the cost involved for knowledge transfer from the information seeker's perspective. The seeker's trust in the donor's competence will make it easy for the seeker to approach the donor.

### **Tie strength**

Studies have also shown that the existence of strong formal ties between the donor and recipient added to informal exchanges and that these informal knowledge exchanges were, in turn, more effective than formal exchanges in knowledge transfer ([Ensign and Hébert, 2009](#)). This corroborated the general finding that a strong relationship between recipient and donor would facilitate knowledge transfer ([Szulanski, 1996](#)). [Hansen \(1999\)](#) took a different route to study the relationship between formal ties and knowledge transfer. He approached it from the type of knowledge being transferred and the presence of strong versus weak ties. He showed that when transfer involved explicit knowledge, the presence of weak ties (against strong ties) ensured rapid transfer, whereas when the transfer involved tacit knowledge, the transfer was faster when stronger ties were involved.

### **Proximity/similarity**

Previous research has shown that similarity among the partners of knowledge transfer influences transfer through attraction ([Darr and Kurtzberg, 2000](#)). When the source and the recipient are socially proximate, it increases the individual's willingness to transfer and absorb knowledge ([Kachra and White, 2008](#)). The similarity in expertise can make communication more efficient because of the expectation that the knowledge transfer costs will not exceed benefits ([Reagans and McEvily, 2003](#)). When coming to social status differences, the person with the lower-status will be more motivated to transfer knowledge than higher status person ([Thomas-Hunt et al., 2003](#)). Personality similarity between the source and recipient can increase trust, respect and motivation to transfer knowledge ([Allen and Eby, 2003](#)). Though geographic proximity can increase the efficiency of knowledge transfer, the knowledge transferred tend to be less novel because of the homogeneity within the geographic region ([Bell and Zaheer, 2007](#)).

### **Debates around motivational and cognitive challenges in knowledge transfer**

The motivational challenges stem from the varied and sometimes, conflicting interests of partners involved in the knowledge transfer. The cognitive challenges arise from the asymmetries in the knowledge residing in the parties involved in transfers. For a better understanding of the cognitive challenges involved in knowledge transfer, it is necessary to revisit the concepts of codified and uncoded knowledge. As discussed earlier, codifiable or explicit knowledge is a consequence of the abstraction and establishment of a cause-effect relationship, whereas uncoded or tacit knowledge has a strong reliance on local experience, is context-dependent and is embodied in individuals involved in the experience. What it implies is that the organizations that have higher proportion of uncoded knowledge would find it difficult to transfer because it becomes costly.

It is also true that organizations are often forced to choose between the two-tacit and explicit when it comes to knowledge transfer. In other words, organizations must either articulate and convert their uncoded knowledge into codified knowledge, and thus, decrease the cost of knowledge transfer or continue to depend on costlier direct communication channels for understanding the uncoded knowledge. In this context, the

distinction between common and partitioned knowledge opens up and their debate surrounding the cognitive challenges in the knowledge transfer process. Studies have shown that the knowledge in an organization can either remain common to everyone or be highly localized (partitioned). The debate has been whether the partitioned knowledge should be transferred to the common domain and, if so, at what cost. Scholars in favor of the common repository highlight the communication and search cost involved, if not codified and transferred to a common pool. In contrast, studies opposing the move to integrate the partitioned or localized knowledge into the common domain point out that such a move could turn out to be costly because the parties to the knowledge transfer might have knowledge gaps within themselves. In other words, the parties involved in knowledge transfer may not be able to reach a shared understanding after they commit to the knowledge transfer process. This means that either the source or the recipient – or both – would have to make considerable investments to render the partitioned knowledge understandable. This is not to say that codified knowledge is easier to transfer; rather, codified knowledge is more like a double-edged sword. Codification can increase the risk of imitation; but if not codified, the communication and search costs could increase. Future research needs to untangle the effect of partitioned and common knowledge on the relationship between the source and recipient during knowledge transfer.

Studies have shown that the motivation and commitment of the parties involved in transfer also become critical for the successful transfer of knowledge. Whether it is intrinsic or extrinsic or both has been a matter of contention among organizational scholars. Researchers such as [Osterloh and Frey \(2000\)](#) argued that intrinsic motivation was an enabler for the transfer of tacit knowledge. The intrinsic motivation came from non-monetary rewards such as recognizing individuals for their good work and opportunities for doing challenging work. The importance of extrinsic motivation in knowledge transfer has been the focus for scholars like [O'Dell and Grayson \(1998\)](#), who found evidence for senior manager's role in reinforcing and rewarding employee behaviors facilitating knowledge transfer. While much of the research emphasizes the need for either extrinsic and intrinsic motivation or both in knowledge transfer, [Jewels and Ford \(2006\)](#) came up with a contradictory finding that individuals are neither motivated to transfer knowledge when promised financial reward nor are they inhibited from transferring knowledge when they believe that their status would decrease in the process.

### **Debate around levels of knowledge transfer**

Till now, the rhetoric about knowledge transfer in an organization has been broadly about individuals involved in the transfer, i.e. interpersonal transfer. However, studies have shown that knowledge transfer is not limited to an individual level and it extends to higher levels of analysis, including groups, departments, divisions and even between organizations. Although ample research has focused on interpersonal knowledge transfer, research examining multiple levels is scarce.

### **Individual level**

At an individual level, it is accepted that knowledge exists in tacit form, mostly embedded in individual members. Scholars in the psychological domain such as [Bandura \(1977\)](#) spent considerable time understanding how knowledge gets transferred from one individual to another. According to [Singley and Anderson \(1989, p. 1\)](#), individual-level knowledge transfer occurs when “knowledge acquired in one situation applies (or fails to apply) to another.” To cite an example, consulting and law firms rely primarily on the knowledge embedded in individuals ([Starbuck, 1992](#)). At the same time, it is important to note that individuals may not transfer the knowledge

they possess with others (Stasser and Titus, 1987). For example, a person who has attended a training program may be less inclined to transfer his knowledge to others who he does not value (Borgatti and Cross, 2003). Szulanski (1996) looked at it from the source's end and reasoned that individuals' difficulty in knowledge transfer may come from his/her inability to communicate, and therefore, it is more of a dysfunction at the individual level. From the receiver's end, Cohen and Levinthal's (1990) discussion about absorptive capacity as "[...] the ability to recognize the value of new, external information, assimilate it and apply it" (Cohen and Levinthal, 1990, p. 128) becomes useful in understanding the difficulty it has. To illustrate this further, consider a situation where a donor is highly advanced in the use of a particular technology as compared to the recipient. In this case, a large part of the knowledge that has to be transferred would be beyond the understanding of the recipient. This ultimately restricts the amount of knowledge transferred. In other words, the recipient's absorptive capacity places an upper limit on the size of knowledge transfer. The literature on sense-making gives much credence to this argument. Teece's (1998) reasons that only in those circumstances where knowledge was fully understood and appreciated by both the donor and recipient would transfer be a simple and inexpensive transaction. If not, the absorptive capacity would be low, knowledge stickiness[1] would be high and the costs linked with the transfer would also be high.

### Group level

Jane Zhao and Anand (2009) distinguished group level knowledge transfer from individual level based on nature, strategic importance and level of difficulty. Though group level transfer is most valuable, it is more difficult and prone to error, as the knowledge remains as tacit among the group members. Coming to the group level of knowledge transfer, tie strength between group members was found to be a good indicator of transfer (Borgatti and Cross, 2003). Following Granovetter's (1973) definition of tie strength in terms of frequency of interactions, reciprocity, mutual confiding and emotional closeness, studies have shown that weak ties provide access to a wide range of information, while strong ties, delve deep into the understanding of information. Hansen (1999) found that strong ties were more conducive for complex knowledge[2] transfer, while weak ties allowed simple knowledge[3] transfer. Contrasting these benefits, studies have highlighted that cost of maintaining strong ties in a group can diminish knowledge transfer. The greater the strength of ties between members in a group, the higher the search cost that further autonomy and accessibility to diverse information sources (Hansen, 1999), and thereby group performance. Tsai (2001) provided another framework for understanding the nature of knowledge transfer among group members based on absorption capacity and network position. The structural positions occupied by group members in the network can both be an antecedent and consequence for opportunities and constraints when it comes to knowledge transfer among group members (Reagans and McEvily, 2003).

What Burt (1992) called structural holes, provides the group member with information from being a broker and makes him/her the only link between the other groups. The range of information accessible to the member from other groups is greatly enhanced through the broker role. While Darr *et al.* (1995) concluded from their studies that the nature of knowledge transfer was highly dependent on group membership, Lapré and Wassenhove (2001) observed that management "buy-in" and diversity influenced knowledge transfer within the organization's units.

### Organizational level

Taking an organizational level perspective, studies have shown that it is difficult to transfer knowledge across different organizational contexts (Inkpen and Tsang, 2005). In support of

this finding, [Huckman and Pisano \(2006\)](#) showed that surgeons who performed the same procedure in different hospitals ended up having different outcomes. In other words, their procedure experience in one hospital did not transfer to their experiences at other hospitals. What it clearly illustrates is the significance of organizational context in the knowledge transfer process that leads us to organizational culture. Previous studies have indicated that culture holds the key in effective knowledge transfer ([Demarest, 1997](#)). Organizational culture that included elements of trust, communication, reward system, and structure, was found to be a major facilitator of knowledge transfer ([Rutten et al., 2016](#); [McEvily et al., 2003](#)). However, the debate that has spurred among cultural theorists revolves around the question – whether organizations should have uniform or various local cultures for effective knowledge transfer choices. Organizational culture is an amalgamation on many – it encompasses artifacts, values, norms, beliefs and basic assumptions shared among members in the organization ([Schein, 1996](#)). Some scholars have argued for cultural integration that involves alignment of assumptions, values and norms of the participating organizations involved in knowledge transfer. They believe that unless there is convergence (where firms’ culture becomes similar) or cross vergence (where new culture evolves), it becomes difficult for employees to understand the knowledge that resides in the firms and develop a shared understanding (Sarala and Vaara, 2010). Also, knowledge transfer becomes difficult in the organization when the culture does not allow cooperative behaviors – tendency to share and collaborate with each other ([Goh, 2002](#)).

### Results and discussion

Our review of knowledge transfer literature indicates that a large part of human knowledge is highly organization-specific, context-specific and tacit in nature ([Figure 1](#)), which poses limits to its effective articulation and transferability. Our lengthy discussion on tacit (uncodified) and explicit (codified) knowledge indicates that there is still no consensus on whether organizations should strive toward converting all embedded (tacit) knowledge into explicit form or whether they should retain knowledge as tacit itself or whether an organization should strike a balance

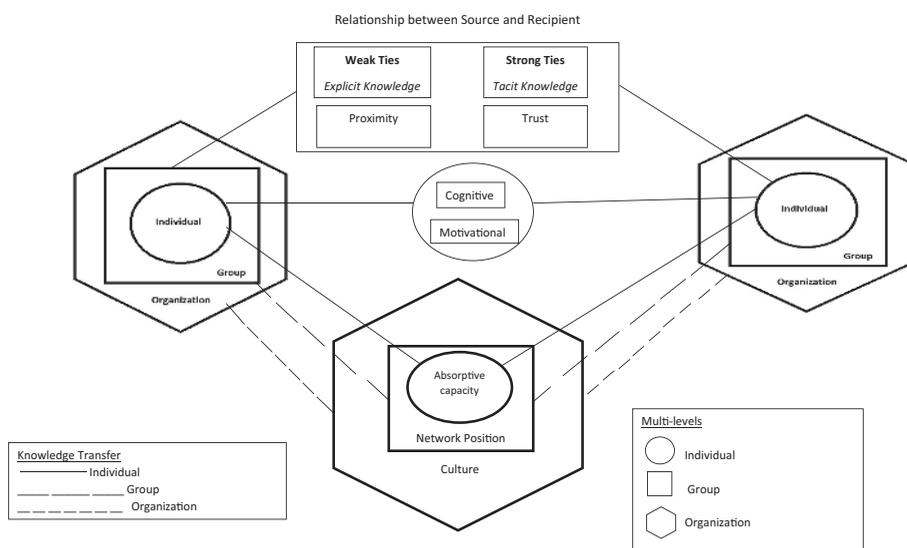


Figure 1. Knowledge transfer

between the tacit and explicit knowledge contained in it. In our observation, one of the factors that influence this decision is cost. If the organization decides to transfer all its tacit knowledge into explicit knowledge (which might not be even possible), the costs incurred would be so exponentially high as to defy economic sense. This decision can also be challenged later if the codified knowledge remains in the organization without any utility for its members after considerable expenditure on its conversion. On the contrary, if the organization decided not to transfer its tacit knowledge into explicit knowledge, the tacit knowledge within the employees remains uncaptured and it would be easily lost when employees transferred, retired or left the organization. The case of departing employee leaving with years of knowledge because of a lack of conversion from tacit to explicit knowledge in an organization was best illustrated by the author's own experience in a private sector bank in India. The bank had consistent growth rate for more than three decades and was an influential voice in the banking industry. The bank had a loyal and committed workforce that was the driving force behind their success story. The top management came in for a shock when they realized that two-thirds of their employees were due to retire in the next four to five years. The bank went on for a recruitment drive to capture young talent in a bid to offset its lack of planning for the future. Although they were successful in attracting talent, the younger folks did not stay with the bank for long as it was just another pit stop for them. On one hand, the bank was finding it difficult to retain the newly-recruited workforce and the other hand, retirements were fast approaching. The bank was facing a crisis-like situation: the top management realized that it had failed to transfer the best practices that had made it the industry leader. The experience that older employees had garnered over the years was about to go when they retired from the bank. The bank tried a few interventions to control the damage. One of the tools that they employed was using storytelling to capture employees' knowledge that was unknown to the larger community. It became clear from these experience sharing sessions through storytelling that tacitness can only be captured through highly interactive conversations and must be intentional. When the culture of the organization was protective in nature, trust becomes a critical factor in determining the extent of tacit knowledge transfer, as it became evident in this case (Argote and Guo, 2016). The older employees found it difficult to share or disclose their tacit knowledge to the new recruits because they were still considered outsiders and their attrition did not help either.

Regarding how causal ambiguity affects the nature of knowledge transfer, a small incident that happened at a leading fast-moving consumer goods (FMCG) company would make it clear the need to further explore the cause-effect relationship. An employee of the soap manufacturing unit of the FMCG company had inadvertently left his machine running during the lunch break. On returning back, the employee found a frothy mixture unseen in the soap business. As none of the inputs and processes had changed, the company marketed the "foamy" product along with the other products. After several months, the company was inundated with offers for this new soap. Having forgotten about the incident that had led to the formation of foamy soap months back, the company was unclear to what ingredient (input) and processes (causal factor) would have resulted in such a frothy mix. After a lot of experimentation, they discovered that the presence of extra air was responsible for this "floating" soap. When the company was completely ignorant about what combination of inputs and processes resulted in the final outcome, their knowledge became causally ambiguous. In such a situation, knowledge transfer ceased. A widely accepted definition of causal ambiguity is that it is the uncertainty that "[...] stems from a basic ambiguity concerning the nature of the causal connections between actions and results" (Lippman and Rumelt, 1982, p. 420). Simonin (1999) and Reed and DeFillippi (1990) indicated that tacitness and complexity could be antecedents to causal ambiguity. The more tacit the knowledge, the greater the associated causal ambiguity (Wilcox-King and Zeithaml, 2001). Szulanski (2000)

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suggested that under conditions of high causal ambiguity, trustworthiness, status and social capital might be less effective in knowledge transfer than currently assumed.

A completely different case would be when people willingly transfer knowledge and how to measure the effectiveness of the transfer (Argote and Ingram, 2000). Baum and Ingram (1998) used a performance approach to measure the degree to which hotels in a vicinity survived by learning from other hotels that belonged to the same chain. Nonetheless, as Argote (2012) rightly mentions, the problem with such performance approach is controlling for factors that affect performance other than the experience of other units in the chain. Another way to measure knowledge transfer is to measure changes in the knowledge of the beneficiary. The problem here is that the knowledge gained can remain tacit, as seen in the bank case. The same issue was highlighted by Berry and Broadbent (1984, 1987) in their study where they found that people who had significant experience with a management simulation in the initial iteration could transfer their experience to the second iteration and they were better off than the participants who had no experience in the second iteration. The presence of knowledge in multiple repositories poses another big challenge for measuring effectiveness of knowledge transfer. Walsh and Ungson (1991) paper talked about the various repositories, such as individual members, roles and structures, standard operating procedures, culture and physical layout of the organization, where knowledge is stored.

The nature of the transmission channel also affects the quality and quantity of the knowledge transferred. The transmission loss associated with tacit knowledge is higher; hence, it has been suggested that the use of rich communication media such as face-to-face and informal talks (Daft and Lengel, 1986) can reduce transmission loss. Some of the researchers have also relied on communications theory (Shannon and Weaver, 1949) to understand the factors that make the transfer of knowledge difficult. According to communications theory, knowledge transfer is akin to a message transfer from source to the recipient within a context. The properties of the message, as well as the context, can put constraints on knowledge transfer that make it stickier. Recently, there has been a move toward organizational learning theories, which look at knowledge transfer as more of an ongoing process rather than a static communication sequence (Szulanski, 2000). A meta-review conducted by Flores *et al.* (2012) in the *Journal of Management* found that the articles published in premier journals such as *the Academy of Management Journal*, *Academy of Management Review*, *Journal of Management*, *Journal of Management Studies* and *Organization Science* between 1970 and 2007 mostly adopted a process approach to organizational learning, which was viewed through a knowledge-transfer lens. In their review, organizational learning was defined as a process composed of information acquisition, information distribution, information interpretation, information integration and organizational memory (Flores *et al.*, 2012).

### Implications for research and practice

Our study has implications for both theory and practice. From a theoretical standpoint, we would like to consider our paper positioned as a contribution to a more holistic view of the nature of knowledge transfer that helps to overcome some of the inherent limitations among reviews that looks at the construct from a unilateral perspective. As we complete this review, it seems that the debate about codification that has spurred the academic community in organizational studies is still in its infancy. The other debates that we discussed have either reached a climax or it has given way to newer debates. Nevertheless, the need for further development of knowledge transfer construct from a theoretical, as well as methodological perspective remains. As Kumar and Ganesh (2009) note, the dimensions that seemed the most prominent in the authors' perspective may open newer thoughts and can lead to the emergence of other perspectives in the field of knowledge transfer. Scholars

can also consider adding new disciplines to the study of knowledge transfer, and thereby, develop a holistic understanding and better insights into the different facets of the topic.

We feel our work holds significance for practitioners. Our study highlights some of the possible consequences for managers of being unaware about the various debates discussed in this paper. If managers do not proactively design a strategic approach to knowledge transfer, they may not be able to manage and transfer knowledge that gives them an edge over their competitors.

### Conclusion

We sought to contribute to an understanding of the various debates on knowledge transfer – tacit versus explicit transfer, multi-level transfer, parties involved in transfer – by conducting a systematic analysis of research published on this topic in leading management, psychology, sociology and economic journals. We developed a comprehensive framework (Figure 1) that organizes the knowledge transfer literature, which we used to review extant research within and across multiple disciplines and levels of analysis. This framework can be considered as the most important contribution of the paper. We identified parts of coherence and conflict in theoretical arguments within and across levels and identified emerging themes for future research. By synthesizing and critically evaluating six decades of research about knowledge transfer across multiple fields and multiple levels, we hope to have contributed to a greater understanding of knowledge transfer and to have stimulated increased attention about knowledge transfer. Our hope is that it would spark further deliberations and discussions among scholars about the various debates in knowledge transfer and translate to interesting themes in the knowledge management literature.

### Notes

1. Szulanski (1996) was credited with introducing the term “stickiness”. In fact, it was Von Hippel (1994) who introduced the notion of knowledge as a sticky asset, meaning that it was difficult to transfer and costly to acquire. He defined stickiness as “[. . .] the incremental expenditure required to transfer that unit of information to a specified locus in a form usable by a given information seeker” (Von Hippel, 1994, p. 430). Szulanski (1996) talked about stickiness as a function of absorptive capacity, causal ambiguity and the relationship between source and recipient.
2. Complex knowledge includes a wide variety of interrelated parts that cannot be easily grouped. It requires greater volume of information and skills to be transferred.
3. Simple knowledge requires a low volume of information and is easily transferred.

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