Task-driven learning: The antecedents and outcomes of internal and external knowledge sourcing

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A B S T R A C T

The degree to which individuals leverage knowledge resources influences their effectiveness and may shape their organizations' competitive advantage. We examine the ways in which tasks with different characteristics affect individuals' use of internal and external knowledge and the outcomes of such behaviors. Our analysis reveals that interdependent and non-routine tasks drive internal knowledge sourcing, while complex tasks motivate external knowledge sourcing. Internal and external knowledge sourcing activities contribute to individuals' cognitive adaptation and innovation, with a negative interaction between them, while cognitive replication benefits only from internal knowledge sourcing. These findings can help managers better satisfy individuals' knowledge needs and achieve intended organizational outcomes.

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1. Introduction

In the ongoing quest for competitive advantage, organizations have increasingly focused on knowledge as a strategic resource [2], which has led them to adopt a range of knowledge management practices, such as knowledge reuse [65], that are intended to help them compete more effectively. They often seek to manage knowledge through information technology (IT) enabled initiatives that enhance the availability of knowledge. Many firms implement electronic knowledge repositories so that individuals can access explicit knowledge easily [e.g., 34]. Others offer computer mediated communication channels (e.g., email, forums, and Skype) so that individuals can communicate with experts conveniently to acquire tacit knowledge [3]. Web 2.0 technologies are also gaining popularity, complementing formal knowledge repositories and directories and assisting individuals in their knowledge sourcing efforts [37,95]. Through such initiatives, the supply of knowledge in many organizations has progressed to such an extent that a broad spectrum of knowledge resources often compete for individuals' attention and use [39].

While the supply of knowledge is an important component of knowledge management, how individuals make use of available knowledge resources is also key [35]. If knowledge can be thought of as justified beliefs and skills that enable effective action [72], then it is individuals' behaviors in seeking out knowledge and taking action based on what they have learned that produces organizational benefits. Indeed, empirical studies support this connection between knowledge seeking behaviors and improved performance [36,59]. Managers who understand how employees use knowledge resources have a better ability to design policies that encourage individual knowledge sourcing behaviors in ways that are more likely to benefit their organizations. They can also prepare and allocate IT resources (e.g., investing in the needed systems and acquiring relevant IT products) more effectively so that individual knowledge sourcing behaviors are optimally supported.

To better elaborate this "demand perspective" on knowledge management, we seek to contrast how individuals leverage internal and external knowledge. Internal knowledge is the knowledge captured and stored by an individual's organization and/or possessed by its members, and external knowledge is the knowledge possessed by outsiders (for instance, experts in other organizations) [68]. Research on knowledge sourcing has principally focused on internal knowledge sources; for instance, some researchers have examined what drives individuals to seek knowledge from internal electronic knowledge repositories [e.g., 34,40,47,65], while others

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have investigated the effects of using different types of internal knowledge sources on individual performance [e.g., 36]. However, there is very limited research on the use of external knowledge at the individual level, even though research at the group and firm levels has highlighted the importance of environmental scanning and absorbing knowledge from the external environment [e.g., 17,20]. Environmental scanning can help reduce strategic uncertainty and facilitate innovation [1], while importing knowledge and combining internal and external knowledge is an important method for achieving superior performance [70].

Research on boundary spanning has offered limited insights into this issue [see 67]. For instance, Tushman and Scanlan [86] explored the mechanisms by which information from outside the organization can be brought in and integrated through the communication behaviors of well-connected individuals. Marrone et al. [66] found that individuals who have higher levels of boundary spanning self-efficacy are more likely to import external information and knowledge and that such boundary spanning behaviors help their teams achieve superior performance. While these studies provide useful insights, most research in this stream considers those individuals who occupy boundary spanning roles, with a strong focus on innovation across a range of performance outcomes [e.g., 85]. There have been few inquiries into the ways in which ordinary knowledge workers leverage internal and external knowledge resources to accomplish various daily tasks [cf., 83], and as a result, there is little holistic understanding that simultaneously considers the antecedents and outcomes of internal and external knowledge sourcing. Nevertheless, it is important to develop such an understanding because individuals' use of knowledge sources can directly affect their effectiveness in the workplace. Moreover, sourcing behaviors collectively affect knowledge integration, which has been found to be a key determinant of organizational performance [70,82]. Without this understanding, the ability of organizations to facilitate knowledge use and consequently enhance performance is inevitably compromised. Researchers have noticed this shortcoming and have called for more research on this important theme [4].

In this study, we adopt a job-related learning perspective to address this lack of research [e.g., 35,61]. The learning perspective has been applied in the context of knowledge sourcing and proven relevant. For instance, Kankanhalli et al. [46] found that individuals' knowledge sourcing initiative is positively associated with their learning effectiveness. Building on prior research, we propose and test a model that integrates task demands, internal and external knowledge sourcing, and learning outcomes. Our purpose is to provide a fine-grained depiction of how individuals mobilize internal and external knowledge resources to cope with different tasks and achieve important learning outcomes in the workplace. The resources relevant to our research include IT enabled resources such as electronic knowledge repositories, the resources accessible via IT such as experts on a forum, and traditional resources such as personal connections and publications. In doing so, we contribute to the literature in two ways. First, we extend the research on individual level knowledge sourcing by considering external knowledge in addition to internal knowledge and examining their direct and interacting effects. Second, by simultaneously examining the antecedents and outcomes of internal and external knowledge sourcing, we elaborate the micro-foundations of how knowledge integration (typically examined at the group or firm level) unfolds at the individual level.

We begin by reviewing the research on individual knowledge sourcing, and introduce a framework of task-driven learning that leads to the development of several novel hypotheses. We then report on our empirical test of these hypotheses and conclude with a discussion of the implications of our findings for both academics and practitioners.

2. Theory and hypotheses

2.1. Literature review

Knowledge sourcing refers to individuals' intentional actions taken to seek out and access others' expertise, experience, insights, and opinions [35]. Rooted in the demand perspective of knowledge management, such individual-level behaviors are key to the success of knowledge management initiatives. Regardless of what an organization does to manage knowledge, benefits are only achievable when employees actively draw on knowledge resources to enhance their performance. While knowledge sourcing occurs in a number of ways, it often relies heavily on IT systems and tools in today's organizations [59]. A range of studies have examined the antecedents of knowledge sourcing, and provide evidence of positive relationships between knowledge sourcing behaviors and individuals' learning outcomes and performance [35,36,59]. Appendix 1 lists the relevant studies identified in our review of the literature with keywords such as knowledge sourcing and knowledge seeking, which we synthesize below.

Research on knowledge sourcing focuses mainly on seeking knowledge within the organization with a considerable focus on the adoption and use of electronic knowledge repositories [e.g., 8,34,47]. For instance, Bock et al. [8] found that collaborative norms facilitate individuals' knowledge seeking from electronic knowledge repositories. Other researchers have explored the use of different types of knowledge sources. As an example, Gray and Meister [36] studied the effects of seeking knowledge from individual co-workers, groups of co-workers, and internal published materials. This focus on internal knowledge sources is consistent with the prevalent notion of sharing best practices and reusing existing knowledge within organizations [65].

Nevertheless, knowledge sourcing also occurs across organizational boundaries [e.g., 83]. Research at the group and firm levels has extensively discussed the importance and mechanisms of importing knowledge from external sources [e.g., 15,20]. Knowledge from third-party databases, other organizations, universities, and other external ties is often perceived as being new and inspiring and is thus considered to be more likely to improve both short-term and long-term performance if integrated properly [70,97]. The R&D literature has shown that organizations that seek knowledge from a variety of external sources are better able to foster innovation [55]. Because external knowledge sources represent a considerable portion of the valuable knowledge resources available to individuals [68,83], understanding individuals' behaviors in this regard is an important step forward for the research on knowledge sourcing.

While the availability of knowledge resources has expanded considerably in recent years, the capacity of individuals to process knowledge remains, of course, relatively inflexible [39]. A theoretical model that distinguishes the systematic differences between internal and external knowledge sourcing may provide important insights into how individuals grapple with the challenge presented by abundant available sources. Considerable satisficing is likely to take place as employees estimate the significant effort that would be required to consult all available sources. Indeed, it is likely that employees apply heuristics and make trade-offs when using internal and external knowledge sources rather than approaching each new situation with the goal of conducting a complete search of all available sources [e.g., 96]. For example, anecdotal evidence suggests that employees often search Google for information or knowledge regardless of whether their organization has an internal – and potentially better – source available [34]. Moreover, because of the differences in the valuation and perceptions (e.g., image cost, ease of access) associated with alternate types of sources [68,91], individuals are likely to approach internal