AEA Papers and Proceedings 2020, 110: 187–192
https://doi.org/10.1257/pandp.20201091

STORIES AND IDENTITY IN ORGANIZATIONS

Knowledge, Stories, and Culture in Organizations[†]

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Organizations are full of stories; organizational economics, not so much. Rather, organizational economics has little work that conceptualizes the role or measures the incidence of stories in organizations.

This shortage concerns us not only because stories are prevalent in organizations but, more importantly, because we think some stories play a role in organizations that sheds light on why organizations exist and how they might be improved. In brief, we explore the idea that stories in organizations may induce a particular kind of organizational knowledge, of which organizational culture is a leading example. We therefore discuss first knowledge, then stories, and finally organizational culture.

I. Knowledge

Sixty years ago, Edith Penrose observed that "economists have, of course, always recognized the dominant role that . . . knowledge plays . . . but have, for the most part, found the whole subject . . . too slippery to handle" (Penrose 1959, p. 77). Since then, economics has made great strides concerning strategic information transmission (e.g., Spence 1973), information design (e.g., Bergemann and Morris 2019), and the like. Does this progress mean that Penrose's observation is dated? We think not.

A. *Knowledge Held by Individuals*

Within philosophy, Gilbert Ryle distinguished "knowing how" from "knowing that" (Ryle 1945). In terminology often used outside economics, one might call the former "knowledge" and the latter "information."

More recently, Michael Polanyi popularized the idea of "tacit" knowledge, arguing that "*we know more than we can tell*" (Polanyi 1966, p. 4, italics in original). Knowing how to ride a bicycle has become a frequent example of knowledge.

Economics has learned a great deal about information since 1959, but concerning Ryle's and Polanyi's conceptions of knowledge, did Penrose know more than she could tell?

B. *Organizational Knowledge*

The index of Arrow's *The Limits of Organization* (Arrow 1974) lists "information" 13 times—tied with "authority" and more than "organization"—but "knowledge" zero times. Perhaps Arrow also saw "knowledge" as trickier terrain than "information."

In contrast, Nelson and Winter drew on Polanyi in discussing not only individual but also *organizational* knowledge: "the routinization of activity in an organization constitutes the most important form of storage of the organization's specific operational knowledge" (Nelson and Winter 1982, p. 99), and "organizational memory is refreshed . . . by exercise—just as, and partly because, individual skills are maintained by being exercised" (p. 107).

C. *Knowledge Management*

By the year 2000, most large firms had some kind of knowledge program (Prusak and Davenport 2013, p. 258). Today, many have a

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[†]Go to https://doi.org/10.1257/pandp.20201091 to visit the article page for additional materials and author disclosure statement(s).

chief knowledge officer or chief learning officer (CKO or CLO). For example, Section IV draws on insights from the CKO of the National Aeronautics and Space Administration (NASA).

The Knowledge-Creating Company by Nonaka and Takeuchi played a leading role in the rapid diffusion of knowledge programs. The book draws heavily on Polanyi, arguing that attempts to express the inexpressible will require "figurative language [and] symbolism" (Nonaka and Takeuchi 1995, p. 8). And the authors move beyond "knowing how" to ride a bike, by including cognitive constructs such as "schemata [and] mental models" as part of tacit knowledge (p. 12).

For our purposes, a second influential book—Davenport and Prusak's *Working Knowledge*—made a key observation: "a good *story* is often the best way to convey meaningful knowledge" (Davenport and Prusak 1998, p. 82, emphasis added). Interestingly, Nonaka and Takeuchi did discuss stories, but as a method for translating explicit knowledge to tacit ("internalization"; Nonaka and Takeuchi, p. 69). Like Davenport and Prusak, we instead consider stories as a method for communicating tacit knowledge from one person to another ("socialization"; Nonaka and Takeuchi, p. 62).

II. Stories

In a celebrated essay, the psychologist Jerome Bruner argued that

> there are two modes of cognitive functioning, two modes of thought, each providing distinctive ways of ordering experience, of constructing reality. The two (though complementary) are irreducible to one another. . . . They differ radically in their procedures for verification. . . . The one verifies by eventual appeal to procedures for establishing formal and empirical proof. The other establishes not truth but verisimilitude. (Bruner 1986, p. 11)

Relatedly, psychologists have long been convinced that "narrative comprehension is among the earliest powers of mind to appear in the young child" (Bruner 1991, p. 9). And now economists recognize this fact: "the human brain has always been highly tuned toward narratives" (Shiller 2017, p. 967).

Stephen Denning—a former leader of knowledge management at the World Bank—went further, suggesting that a good story can enable "a leap in understanding" by having the listeners "fill in the blanks" (Denning 2001, pp. xviii, xx). Comparing Bruner's two modes, Denning argued that "abstract thinking works by similes, . . . [whereas] narrative . . . works by metaphor." And linking to Polanyi, Denning asserted that a good story leverages "the full richness of tacit understanding" (p. 70).

A. *Brains and Domains*

From an evolutionary perspective, it seems expensive to carry two modes of cognitive functioning, unless each was well suited to its own domain. Bruner again pointed the way:

> Most of our knowledge of human knowledge-getting . . . is drawn from studies of how people come to know the natural or physical world rather than the human or symbolic world. . . . We do not achieve our mastery of social reality by growing up as "little scientists," "little logicians," or "little mathematicians." . . . We organize our experience and our memory of human happenings mainly in the form of narrative. (Bruner 1991, p. 4)

The idea that narrative is helpful in interpreting the human (versus the physical) world makes it natural that organizations are full of stories.

B. *Stories Told in Organizations*

One widespread account of stories in organizations concerns the department store Nordstrom allowing a customer to return snow tires—even though Nordstrom does not sell tires. Apparently the Nordstrom store was in a building that had long been an auto store, so the customer might have been confused.[1]

For our purposes, it is not critical whether such a story is true; instead, the point is that such stories are told within organizations about themselves. Within Nordstrom, this story

[1] For example, see John Ewoldt, "Did Someone Really Return a Set of Tires to Nordstrom?" *Star Tribune*, October 2, 2015, http://www.startribune.com/did-someone-really-return-a-set-of-tires-to-nordstrom/330414071/.

illustrates customer service, which is central to the firm's competitive strategy. Perhaps more importantly, this story illustrates a central aspect of Nordstrom's internal management: employees are encouraged to "use good judgment in all situations."[2] In short, the story is a dramatic reminder to new and even continuing Nordstrom employees of two important principles for the organization: customer service and using good judgment.

We stated the Nordstrom story in a paragraph. But in an ethnography of stories in an office supply firm, Boje argued that "stories are performed . . . to make sense of an equivocal situation" (Boje 1991, p. 106) and that "most storytelling is done in conversation and involves the listeners in various ways" (p. 107). That is, "storytelling did not appear in concise sequences of storytellers recounting full texts to passive listeners" (p. 112); instead, listeners "are co-producers with the teller of the story performance" (p. 107).

Finally, not all competitive strategies or management approaches may require stories. On one hand, Winter argued that "it is in the choice of heuristic frame . . . that creative insight into strategic problems plays its role" (Winter 1987, p. 185). We take Winter's "heuristic frame" to be akin to a story, but Denning illustrated the flip side: "those whose goal is merely . . . control will [not] find storytelling . . . a very . . . important tool" (Denning 2001, p. 194).

Building on these ideas, we turn next to a role for stories in building, maintaining, and changing *organizational* culture.

III. Stories and Cultural Knowledge

Discussing how stories might induce cultural knowledge requires a definition of culture, but "culture is one of the . . . most complicated words in the English language" (Williams 1983, p. 87). For example, almost 70 years ago, more than 160 definitions had already been proposed (Kroeber and Kluckhohn 1952).

Within economics, there is now a literature on "culture and institutions" (Alesina and Giuliano 2015), much of which adopts something like the following conception of culture: "customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation" (Guiso, Sapienza, and Zingales 2006, p. 23).

This customary-values, cross-generational conception of culture might well be transmitted (across generations) via stories. Furthermore, this kind of culture might well affect organizational design and performance: Hofstede (1980) is a classic reference; Bloom, Sadun, and Van Reenen (2012) provides an elegant recent example.

While we share these interests in (i) the connection between culture and stories and (ii) the effects of culture on organizational design and performance, we depart from the customary-values, cross-generational notion of culture in two ways. First, rather than looking across generations, we follow Schein (1985) by considering the local path dependence of shared understandings in groups. And second, rather than values, we follow Geertz (1973) by focusing on interpretation. The notion of *organizational* culture we study is thus smaller scale, faster moving, and often intentional: one might write "Culture and Institutions" versus "culture from organizations."

A. *Local Path Dependence*

Rather than cross-generational transmission, we follow Schein's seminal definition of organizational culture as "a pattern of basic assumptions . . . *invented*, *discovered*, *or developed by a given group as it learns to cope with its problems* of external adaptation and internal integration" (Schein 1985, p. 9, emphasis added). Schein's definition reminds us that a given group (with given grandparents) could wind up with various different organizational cultures.

Interestingly, ideas like Schein's appeared early in organizational economics, but without using the term organizational *culture*. For example, in discussing an organizational *routine*, Nelson and Winter describe "a shared tradition arising out of the specific contingencies confronted and the responses of the parties to those contingencies" (Nelson and Winter 1982, p. 111) (but they include no reference to organizational culture in their index).

B. *Interpretation*

Geertz argued that "culture is public because meaning is" (Geertz 1973, p. 12). A first

[2] For example, see Suzanne Lucas, "Nordstrom's Awesome Employee Handbook Is a Myth," *CBS News*, October 15, 2014, https://www.cbsnews.com/news/nordstroms-awesome-employee-handbook-is-a-myth/.

inference from this astounding sentence is that meaning is public. That is, meaning—or, for us, synonymously, "interpretation"—is shared. In this usage, one person cannot make meaning.

A second inference is that culture, too, is shared: for Geertz, culture is a concept at the group level (not the distribution of individuals' characteristics across the group).

Finally, a third inference is that culture is about meaning, or interpretation. For example, two people from the same culture might interpret one of Boje's "equivocal situations" in the same way.

To express some of these ideas formally, consider the story (s, a). That is, consider the story that when the state of the world was s, the appropriate action was a. An atomless probability distribution on a continuous state space has probability zero that any particular s will recur, so such a story is useless if it guides behavior only in state s. But a story could be useful if it inspired a "leap in understanding" from listeners "filling in the blanks."

Put differently, in geometric terms, two points define a line, but a good story might be closer to one point defining a line. That is, the story (s, a) might evoke other state-action pairs consistent with the story, without articulating them; they might be tacit. As a result, today's story might aid tomorrow's interpretation: for example, is a new state, s', sufficiently similar to the state s in the story to warrant the same action a in response?

C. *Building Meaning through Stories?*

If we have done our job, then the following interim conclusion should seem natural. If organizational culture involves (it would be redundant to say "shared") interpretation, and if interpretation depends on tacit knowledge, and if a good story can leverage or transfer tacit knowledge, then stories may play a role in building organizational culture.[3]

Returning to our formal framework, if an organization's leader wishes the organization's state-dependent action rule to be $a^*(\cdot)$, but the leader cannot express this entire function explicitly, might there be a story that the leader finds useful to tell? Taken literally, the story might again be the state-action pair (s, a), but a leap in understanding might create in the listener's head the function $\hat{a}(\cdot)$.

Many questions then arise: What stories are available, making what functions $\hat{a}(\cdot)$ available? Does the leader know what function will be induced in a given listener's head, or does that depend on tacit knowledge the leader does not know? Might two listeners have different functions induced in their heads by a single story from the leader? In a dynamic setting, could the listener's coproduction of the story result in a new function in the listener's head, and what might be the leader's belief about that function? And so on.

Such questions illustrate the "clarity" problem underlying relational contracts (Gibbons and Henderson 2012): if the parties could be fully explicit about their strategies in a relational contract, why couldn't those strategies be captured in a formal (i.e., court-enforceable) contract? Like tacit knowledge, relational contracts might thus have inexpressible aspects, creating a role for stories in building relational contracts. Put differently, equilibria like relational contracts require a great deal of (shared) interpretation, so we need to understand how this might be achieved.

D. *Progress to Date and Next Steps*

Knowledge.—Garicano (2000) is a leading model in organizational economics about the use of knowledge in production: if their knowledge allows it, organization members solve the problems they confront; if not, they pass the problem to someone with different knowledge. Since organization members do not tell each other what they know, their knowledge could be interpreted as tacit, but endowing members with their knowledge is taken to be a simple matter of costly training, and the organization designer knows what each member knows, so the model is probably better interpreted in terms of information (as in Arrow 1974, Bergemann and Morris 2019). A model of tacit knowledge would be a big step forward.

Stories.—Akerlof, Matouschek, and Rayo (2020) may be the only model in organizational economics of stories in organizations. As a

[3] Actually, none of this depends on the organized activity being conducted within a single organization. See Gibbons (2020) for a parallel discussion of "visible hands" between organizations.

reduced form, a story changes a party's utility function. DiMaggio would label this approach "regulative" for its analysis of how norms, values, and conventions reshape an individual's self-interest (DiMaggio 1994, pp. 27–28). In contrast, he would call our focus on interpretation "constitutive" for its exploration of how parties perceive and process the world around them. See Hoff and Stiglitz (2016) for a model and discussion like our approach; we are eager for more.

Local Path Dependence.—Chassang (2010) was one of the first models in organizational economics aimed at (and beautifully delivering on) local path dependence, but—like all Nash equilibria—the parties know each other's strategies, so there seems to have been no difficulty expressing them. Ellison and Holden (2014) assumed instead that some states of the world are such that the parties cannot discuss them until they have seen them together—echoing Polanyi (1966), Nelson and Winter (1982), and Schein (1985). Blending these approaches seems important.

IV. Coda

While stories and knowledge can contribute to an organization's culture, the culture also can be an impediment to accepting stories as contributing to knowledge. The latter was true at NASA, where there is a strong engineering-based culture.

When Ed Hoffman, who retired as NASA's CKO, first broached the idea of using stories to help introduce and discuss innovative products and practices, he was greeted with silence—and sometimes with astonishment that such complex matters could be reduced to "tales."[4]

NASA held several forums each year focusing on this role for stories, but attendance and enthusiasm weren't strong. Hoffman made a conscious decision to encourage the presenters to rely much less on slides and more on telling their stories in a "natural" way. Hoffman and his staff helped coach some of the reluctant presenters and spent much time convincing them that this approach would work.

[4] The account in this section is from Ed Hoffman, via personal communication with Laurence Prusak.

After the first few forums, word spread about this new way of communicating, and attendance dramatically improved. Hoffman was promoted to CKO, and the story tradition became part of NASA's culture and was adopted by some other space programs around the world. The power of stories surmounted an antagonist culture, and storytelling became a substantive part of NASA's culture.

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