

Information Technology and Organizational Learning

Managing Behavioral Change
in the Digital Age

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the discussion-to-decision portion, and the latter represents the actual doing and completion of the project itself. In QIII, table-talk requires knowledge management to transition technology concepts into real options. QIV transforms these real options into actual projects, in which, reflecting on actual practices during implementation, provides an opportunity for individual- and organizational-level learning.

Marshak's (1998) concept of containers and cycles of talk and action are adapted and integrated with cyclical and linear maturity models of learning. However, discourse and language must be linked to performance, which is why it needs to be part of the discourse and language-learning wheel. By integrating discourse and language into the wheel, individual and group activities can use discourse and language as part of reflective practices to create an environment that can foster action that leads to measurable outcomes. This process, as explained throughout this book, is of paramount importance in understanding how discourse operates with ROD in the information age.

Linear Development in Learning Approaches

Focusing only on the role of the individual in the company is an incomplete approach to formulating an effective learning program. There is another dimension to consider that is based on learning maturation. That is, where in the life cycle of learning are the individuals and the organization? The best explanation of this concept is the learning maturation experience at Ravell. During my initial consultation at Ravell, the organization was at a very early stage of organizational learning. This was evidenced by the dependence of the organization on event-driven and individual reflective practice learning. Technology acted as an accelerator of learning—it required IT to design a new network during the relocation of the company. Specifically, the acceleration, operationalized by a physical move, required IT to establish new relationships with line management. The initial case study concluded that there was a cultural change as a result of these new relationships—cultural assimilation started to occur using organizational learning techniques, specifically reflective practices.

After I left Ravell, another phase in the evolution of the company took place. A new IT director was hired in my stead, who attempted

to reinstate the old culture: centralized infrastructure, stated operational boundaries, and separations that mandated anti-learning organizational behaviors. After six months, the line managers, faced with having to revert back to a former operating culture, revolted and demanded the removal of the IT director. This outcome, regrettable as it may be, is critical in proving the conclusion of the original study that the culture at Ravell had indeed evolved from its state, at the time of my arrival. The following are two concrete examples that support this notion:

1. The attempt of the new IT director to “roll back” the process to a former cultural state was unsuccessful, showing that a new evolving culture had indeed occurred.
2. Line managers came together from the established learning organization to deliver a concerted message to the executive team. Much of their learning had now shifted to a social organization level that was based less on events and was more holistic with respect to the goals and objectives of the organization.

Thus, we see a shift from an individual-based learning process to one that is based more on the social and organizational issues to stimulate transformation. This transformation in learning method occurred within the same management team, suggesting that changes in learning do occur over time and from experience. Another way of viewing the phenomenon is to see Ravell as reaching the next level of organizational learning or maturation with learning. Consistent with the conclusion of the original study, technology served to accelerate the process of change or accelerate the maturation process of organizational learning.

Another phase (Phase II) of Ravell transpired after I returned to the company. I determined at that time that the IT department needed to be integrated with another technology-based part of the business—the unit responsible for media and engineering services (as opposed to IT). While I had suggested this combination eight months earlier, the organization had not reached the learning maturation to understand why such a combination was beneficial. Much of the reason it did not occur earlier, can also be attributed to the organization’s inability to manage ROD, which, if implemented,

would have made the integration more obvious. The initial Ravell study served to bring forth the challenges of cultural assimilation, to the extent that the organization needed to reorganize itself and change its behavior. In phase II, the learning process matured by accelerating the need for structural change in the actual reporting processes of IT.

A year later, yet another learning maturation phase (phase III) occurred. In Ravell, Phase III, the next stage of learning maturation, allowed the firm to better manage ROD. After completing the merger of the two technically related business units discussed (phase II), it became necessary to move a core database department completely out of the combined technology department, and to integrate it with a business unit. The reason for this change was compelling and brought to light a shortfall in my conclusions from the initial study. It appears that as organizational learning matures within ROD, there is an increasing need to educate the executive management team of the organization. This was not the case during the early stages of the case study. The limitation of my work, then, was that I predominantly interfaced with line management and neglected to include executives in the learning. During that time, results were encouraging, so there was little reason for me to include executives in event-driven issues, as discussed. Unfortunately, lacking their participation fostered a disconnection with the strategic integration component of ROD. Not participating in ROD created executive ignorance of the importance that IT had on the strategy of the business. Their lack of knowledge resulted in chronic problems with understanding the relationship and value of IT on the business units of the organization. This shortcoming resulted in continued conflicts over investments in the IT organization. It ultimately left IT with the inability to defend many of its cost requirements. As stated, during times of economic downturns, firms tend to reduce support organizations. In other words, executive management did not understand the driver component of IT.

After the move of the cohort of database developers to a formal business line unit, the driver components of the group provided the dialogue and support necessary to educate executives. However, this education did not occur based on events, but rather, on using the social and group dynamics of organizational learning. We see

here another aspect of how organizational and individual learning methods work together, but evolve in a specific way, as summarized in Table 4.2.

Another way of representing the relationship between individual and organizational learning over time is to chart a “maturity” arc to illustrate the evolutionary life cycle of technology and organizational learning. I call this arc the ROD arc. The arc is designed to assess individual development in four distinct sectors of ROD, each in relation to five developmental stages of organizational learning. Thus, each sector of ROD can be measured in a linear and integrated way. Each stage in the course of the learning development

Table 4.2 Analysis of Ravell’s Maturation with Technology

LEARNING	PHASE I	PHASE II	PHASE III
Type of learning	Individual reflective practices used to establish operations and line management.	Line managers defend new culture and participate in less event-driven learning.	Movement away from holistic formation of IT, into separate driver and supporter attributes. Learning approaches are integrated using both individual and organizational methods, and are based on functionality as opposed to being organizationally specific.
Learning outcomes	Early stage of learning organization development.	Combination of event-driven and early-stage social organizational learning formation.	Movement toward social-based organizational decision making, relative to the different uses of technology.
Responsive organizational dynamism: cultural assimilation.	Established new culture; no change in organizational structure.	Cultural assimilation stability with existing structures; early phase of IT organizational integration with similar groups.	Mature use of cultural assimilation, based on IT behaviors (drivers and supporters).
Responsive organizational dynamism: Strategic integration.	Limited integration due to lack of executive involvement.	Early stages of value/needs based on similar strategic alignment.	Social structures emphasize strategic integration based on business needs.

of an organization reflects an underlying principle that guides the process of ROD norms and behaviors; specifically, it guides organizations in how they view and use the ROD components available to them.

The arc is a classificatory scheme that identifies progressive stages in the assimilated uses of ROD. It reflects the perspective—paralleling Knepfelkamp's (1999) research—that individuals in an organization are able to move through complex levels of thinking, and to develop independence of thought and judgment, as their careers progress within the management structures available to them. Indeed, assimilation to learning at specific levels of operations and management are not necessarily an achievable end but one that fits into the psychological perspective of what productive employees can be taught about ROD adaptability. Figure 4.9 illustrates the two axes of the arc.

The profile of an individual who assimilates the norms of ROD can be characterized in five developmental stages (vertical axis) along four sectors of literacy (horizontal axis). The arc characterizes an individual at a specific level in the organization. At each level, the arc identifies individual maturity with ROD, specifically strategic integration, cultural assimilation, and the type of learning process (i.e., individual vs. organizational). The arc shows how each tier integrates with another, what types of organizational learning theory best apply, and who needs to be the primary driver within the organization. Thus, the arc provides an organizational schema for how each conceptual component of organizational learning applies to each sector of ROD. It also identifies and constructs a path for those individuals who want to advance in organizational rank; that is, it can be used to ascertain an individual's ability to cope with ROD requirements as a precursor for advancement in management. Each position within a sector, or cell, represents a specific stage of development within ROD. Each cell contains specific definitions that can be used to identify developmental stages of ROD and organizational learning maturation. Figure 4.10 represents the ROD arc with its cell definitions. The five stages of the arc are outlined as follows:

Sectors of responsive organizational dynamism	Operational knowledge	Department/unit view as other	Integrated disposition	Stable operations	Organizational leadership
Strategic integration					
Cultural assimilation					
Organizational learning constructs					
Management level					

Figure 4.9 Reflective organizational dynamism arc model.

Sector variable	Operational knowledge	Department/unit view as other	Integrated disposition	Stable operations	Organizational leadership
Strategic integration	Operations personnel understand that technology has an impact on strategic development, particularly on existing processes	Individual beliefs of strategic impact are incomplete; individual needs to incorporate other views within the department or business unit	Recognition that individual and department views must be integrated to be complete and strategically productive for the department/unit	Changes made to processes at the department/unit level formally incorporate emerging technologies	Departmental strategies are propagated and integrated at organization level
Cultural assimilation	View that technology can and will affect the way the organization operates and that it can affect roles and responsibilities	Changes brought forth by technology need to be assimilated into departments and are dependent on how others participate	Understands need for organizational changes; different cultural behavior new structures are seen as viable solutions	Organizational changes are completed and in operation; existence of new or modified employee positions	Department-level organizational changes and cultural evolution are integrated with organization-wide functions and cultures
Organizational learning constructs	Individual-based reflective practice	Small group-based reflective practices	Interactive with both individual and middle management using communities of practice	Interactive between middle management and executives using social discourse methods to promote transformation	Organizational learning at executive level using knowledge management
Management level	Operations	Operation and middle management	Middle management	Middle management and executive	Executive

Figure 4.10 Responsive organizational dynamism arc.

1. *Operational knowledge*: Represents the capacity to learn, conceptualize, and articulate key issues relating to how technology can have an impact on existing processes and organizational structure. Organizational learning is accomplished through individual learning actions, particularly reflective practices. This stage typically is the focus for operations personnel, who are usually focused on their personal perspectives of how technology affects their daily activities.
2. *Department/unit view as other*: Indicates the ability to integrate points of view about using technology from diverse individuals within the department or business unit. Using these new perspectives, the individual is in position to augment his or her understanding of technology and relate it to others within the unit. Operations personnel participate in small-group learning activities, using reflective practices. Lower levels of middle managers participate in organizational learning that is in transition, from purely individual to group-level thinking.
3. *Integrated disposition*: Recognizes that individual and departmental views on using technology need to be integrated to form effective business unit objectives. Understanding that organizational and cultural shifts need to include all member perspectives, before formulating departmental decisions, organizational learning is integrated with middle managers, using communities of practice at the department level.
4. *Stable operations*: Develops in relation to competence in sectors of ROD appropriate for performing job duties for emerging technologies, not merely adequately, but competitively, with peers and higher-ranking employees in the organization. Organizational learning occurs at the organizational level and uses forms of social discourse to support organizational transformation.
5. *Organizational leadership*: Ability to apply sectors of ROD to multiple aspects of the organization. Department concepts can be propagated to organizational levels, including strategic and cultural shifts, relating to technology opportunities. Organizational learning occurs using methods of knowledge management with executive support. Individuals use their

technology knowledge for creative purposes. They are willing to take risks using critical discernment and what Heath (1968) calls “freed” decision making.

The ROD arc addresses both individual and organizational learning. There are aspects of Senge’s (1990) “organizational” approach that are important and applicable to this model. I have mentioned its appropriateness in regard to the level of the manager—suggesting that the more senior manager is better positioned to deal with nonevent learning practices. However, there is yet another dimension within each stage of matured learning. This dimension pertains to timing. The timing dimension focuses on a multiple-phase approach to maturing individual and organizational learning approaches. The multiple phasing of this approach suggests a maturing or evolutionary learning cycle that occurs over time, in which individual learning fosters the need and the acceptance of organizational learning methods. This process can be applied within multiple tiers of management and across different business units.

The ROD arc can also be integrated with the applied individual learning wheel. The combined models show the individual’s cycle of learning along a path of maturation. This can be graphically shown to reflect how the wheel turns and moves along the continuum of the arc (Figure 4.11).

Figure 4.11 shows that an experienced technology learner can maximize learning by utilizing all four quadrants in each of the maturity stages. It should be clear that certain quadrants of individual learning are more important to specific stages on the arc. However, movement through the arc is usually not symmetrical; that is, individuals do not move equally from stage to stage, within the dimensions of learning (Langer, 2003). This integrated and multiphase method uses the applied individual learning wheel with the arc. At each stage of the arc, an individual will need to draw on the different types of learning that are available in the learning wheel. Figure 4.12 provides an example of this concept, which Knepelkamp calls “multiple and simultaneous” (1999), meaning that learning can take on multiple meanings across different sectors simultaneously.

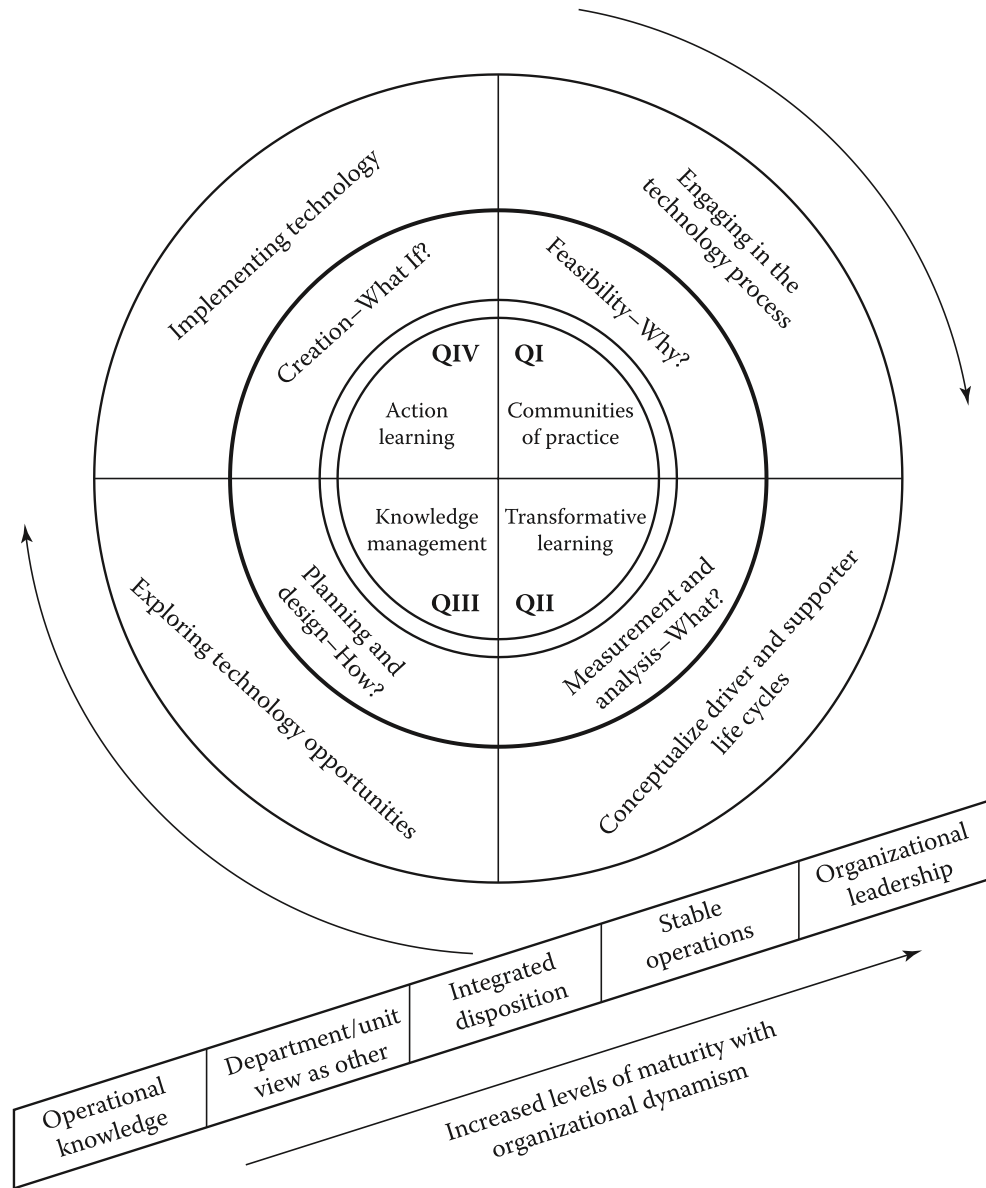


Figure 4.11 ROD arc with applied individual learning wheel.

Figure 4.12 shows that the dimension variables are not necessarily parallel in their linear maturation. This phenomenon is not unusual with linear models, and in fact, is quite normal. However, it also reflects the complexity of how variables mature, and the importance of having the capability and infrastructure to determine how to measure such levels of maturation within dimensions. There are both qualitative and quantitative approaches to this analysis. Qualitative approaches typically include interviewing, ethnographic-type experiences over

Dimension variable	Operational knowledge	Department/unit view as other	Integrated disposition	Stable operations	Organizational leadership
Strategic integration					
Cultural assimilation					
Organizational learning constructs					
Management level					

Figure 4.12 Sample ROD arc.

some predetermined time period, individual journals or diaries, group meetings, and focus groups. Quantitative measures involve the creation of survey-type measures; they are based on statistical results from answering questions that identify the level of maturation of the individual.

The learning models that I elaborate in this chapter are suggestive of the rich complexities surrounding the learning process for individuals, groups, and entire organizations. This chapter establishes a procedure for applying these learning models to technology-specific situations. It demonstrates how to use different phases of the learning process to further mature the ability of an organization to integrate technology strategically and culturally.