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# Adopting Informed Systems learning theory: How 21st Century organizations can move from theory to practice

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# Adopting Informed Systems Learning Theory

» How 21st century organizations can move from theory to practice.\*

BY MARY M. SOMERVILLE

**F**or more than a decade, organizational learning initiatives in North American academic libraries have applied informed learning theory, originating in Australia, for using information to learn. At the same time, and in a complementary fashion, systems design methods originating in England catalyzed information-focused and action-oriented projects to improve local situations.

Throughout, co-designed structures, sustained relationships, and professional practices furthered the enablement and enactment of collaborative learning processes that identified decisions to be made and actions to be taken. This systemic learning approach offers transferable guidance for ensuring effective processes and supportive infrastructure for nimble and inclusive direction setting and decision making in the midst of unrelenting changes within the higher education and scholarly communications environments.

## LEARNING THE WAY TO CHANGE

In the book, *Informed Systems: Organizational Design for Learning in Action*, I wrote, “As formats, creators, vendors, and publishers proliferate in the twenty-first century, traditional assumptions, workflows, and expectations are shattered in academic libraries.”<sup>1</sup> These converging factors now require that organizations create workplace systems, relationships, and practices that inform and enable the nimble adaptation to dynamically changing circumstances.

In response, an Informed Systems approach for leading change initiatives has been under development in North America since 2003. Guiding principles and practices exercise information-focused participatory design, action learning, and perpetual inquiry through experiencing what Christine Bruce in 2008 called “using information to learn” in ever expanding professional situations.<sup>2</sup> A persistent emphasis on cultivating

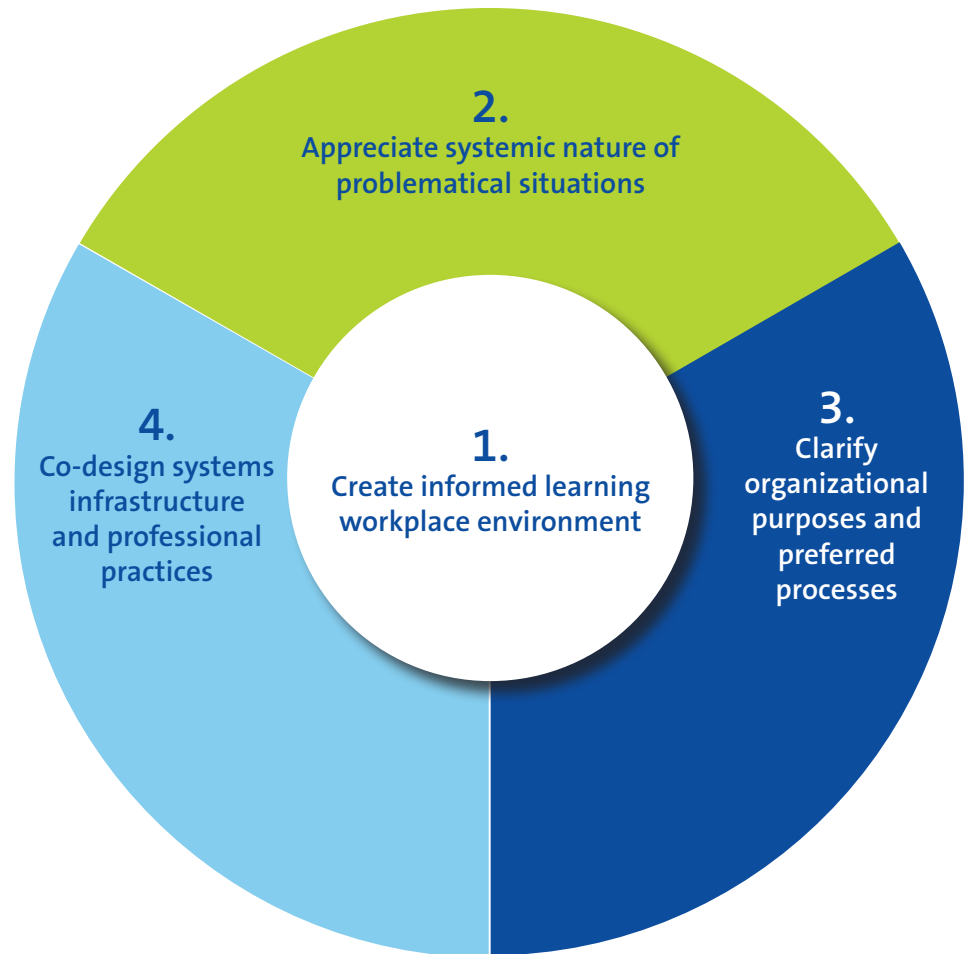


Figure published in Mary M. Somerville. (2015). *Informed Systems: Organizational design for learning in action*. Oxford, England: Chandos Publishing. Reproduced with permission from Chandos Publishing, a subsidiary of Elsevier.

rich information experiences fostered by dialogue and reflection serves to advance information exchange and knowledge creation, through which transferable learning occurs and organizational capacity builds.

This robust approach to fostering workplace inquiry emerges from the work of two theorists, Bruce from Australia (who advanced informed learning) and Peter Checkland from England (who developed soft systems methodology). These theorists promote the kind of learning made possible through evolving and transferable capacity to use information to learn within collab-

oratively designed workplace communication systems with associated professional practices.

Initiating systems co-design activities stimulate participants' appreciation of the potential for using information to learn, according to Checkland & Holwell's book, *Information, Systems, and Information Systems: Making Sense of the Field*.<sup>3</sup> Then co-designed socio-cultural practices continue workplace learning, described by Bruce as informed learning,<sup>4</sup> accelerated through information experiences as discussed in *Information Experience: Approaches to Theory*

» **In response, Informed Systems evolved to foster information exchange, reflective dialogue, knowledge creation, and conceptual change in the organization. Over time and with practice, this approach progresses co-workers' capacity for creating systems and producing knowledge, activated by participatory design, amplified by systems thinking, and exercised by collective discourse.**

*and Practice*, edited by Bruce and others.<sup>5</sup>

The resulting Informed Systems approach recognizes the organization as a knowledge ecosystem consisting of a complex set of interactions among people, process, technology, and content. Within this context, as explained by Nonaka in his article, "A Dynamic Theory of Organizational Knowledge Creation," knowledge emerges through individuals' exchange of resources, ideas, and experiences.<sup>6</sup> It naturally follows that "knowledge-related work requires thinking—not only monitoring, browsing, searching, selecting, finding, recognizing, sifting, sorting, and manipulating but also being creative, always questioning, interpreting, understanding situations, adapting to changes, tailoring, handling data created, e.g., in the lab, with particular focus on how to put questions, draw inferences, give explanations and conclusions, prioritize ... within complex, ever-changing environments," writes Materska in the paper, "Is Information Literacy Enough for a Knowledge Worker?"<sup>7</sup>

In response, Informed Systems evolved to foster information exchange, reflective dialogue, knowledge creation, and conceptual change in the organization. Over time and with practice, this approach progresses co-workers' capacity for creating systems and producing knowledge, activated by participatory design, amplified by systems thinking, and exercised by collective discourse. These requisite elements of a vibrant workplace learning environment appreciate the social nature of generating knowledge through what I described in 2009 as "working together,"<sup>8</sup> whereby colleagues with differing but complementary knowledge skills and work responsibilities advance social, relational, and interactive aspects of work life.

Throughout, organizational learning within designed systems is catalyzed and enlivened through the explicit practice of using information to learn in ever expand-

ing professional contexts, through which transferable learning occurs and organizational capacity builds. More specifically, as I wrote in my 2015 book, systemic leadership and collaboration models promote collective "sense making" that guides organizational "action taking."<sup>9</sup> Collective knowledge creation capabilities are extended as continuous improvements are exercised through workplace systems, relationships, and practices that support continuous learning and refine local practices.

#### **LEARNING THE WAY TO ACTION**

Informed Systems implementation results at California Polytechnic State University from 2003 to 2006 and at the University of Colorado Denver from 2008 to 2015 demonstrate the efficacy of cultivating informed learning experiences within enabling, co-designed workplace systems. Application of action research results to local professional practices in California and Colorado also reveal the synergy of systems perspectives and knowledge practices that—in combination—intentionally further organizational learning. According to the authors of the 2005 article, "Rethinking What We Do and How We Do It: Systems Thinking Strategies for Library Leadership," the following results are suggested by early research:<sup>10</sup>

- Integral to creation of a robust learning organization, leaders are responsible for design of workplace environments supportive of information-rich conversations.
- Systems thinking can be used to contextualize workplace issues in terms that revisit both the nature of organizational information and the purpose of organizational work.
- It follows that as leaders apply systems thinking methodologies and tools to understand the complexities of the organization and its situation, staff members learn to diagnose problems, identify consequences, and make informed responses within a holistic context.

Results from this early development work demonstrate that application of these principles changes how co-workers think and what they think about, points made again in the 2005 article:

- Individuals see the underlying context and assumptions for their decision. This new relational understanding predisposes them to adjust their assumptions and strategies as they learn—in other words, as they change appreciative settings.
- Over time and with practice, individuals' adoption of systems thinking and thinking tools provides a collective strategy for successfully responding to new information and unique situations.
- Sustained conversations rich in relational context provide the substance of a robust organizational learning environment. This dialogue has transformative potential when it activates and extends prior learning.

Building on this transferable context and assumptions, organizational development activities since 2008 at the University of Colorado Denver have focused on exercising and elaborating informed learning capacities. Transferable outcomes of using information to learn within ever expanding relational contexts are initiated and catalyzed during design (and redesign) of organizational communication systems and professional workplace practices. As defined by Bruce and others in the article, "Supporting Informed Learners in the 21st Century,"<sup>11</sup> designing and enacting exercises essential for the informed learning capabilities of current organizational life include:

- Information and communication technologies to harness technology for information and knowledge retrieval, communication, and management,
- Information sources and information experiences to use information sources (including people) for workplace learning and action taking,
- Information and knowledge generation

processes to develop personal practices for finding and using information for novel situations,

- Information curation and knowledge management for organizing and managing data, information, and knowledge for future professional needs,
- Knowledge construction and worldview transformation to build new knowledge through discovery, evaluation, discernment, and application,
- Collegial sharing and knowledge extension to exercise and extend professional practices and knowledge bases which generate workplace insights and informed decisions, and
- Professional wisdom and workplace learning to contribute to collegial learning, using information to learn to better take action to improve.

Learning the way to action naturally occurs through exercising informed learning capabilities during increasingly more complex information usage experiences within the ever expanding social, procedural, and physical workplace information landscape, as explained in my 2015 book. Taking action to improve, then, naturally produces changes in the ways of perceiving and of becoming newly aware—thereby learning. The workplace benefit is then amplified by socio-cultural processes and practices co-designed by co-workers.

#### LEARNING THE WAY TO CONTINUOUS WORKPLACE LEARNING

Enactment of workplace learning requires an enabling environment for information exchange, sense making, and knowledge creation activities that advance information use and learning relationships. In this way, collective capacity for discussion and analysis of complexities and interdependencies grows. Throughout, information must be embedded and embodied in different social practices, with associated artifacts and activities that assume meaning within the context of specific workplace practices. In other words, writes Lloyd, learning is a socio-cultural process that cultivates “resilient workers.”<sup>12</sup>

Through construction and reconstruction of the learner during interactive relationships and sustainable networks among information, technology, and people, Hager, in his article, “Conceptions of Learning and Understanding Learning at Work,” concludes that the “construction of learning, of learners

and of the environments in which they operate” evolve to adopt and adapt, create and recreate, contextualize and re-contextualize through wider and wider circles of consultation, cooperation, and collaboration.<sup>13</sup>

The process of organizational learning requires double loop learning, whereby organizations respond to changes in their environment by challenging and redefining underlying assumptions and organizational norms, as explained by Argyris and Schön in their book, *Organisational Learning*.<sup>14</sup> Deep learning also requires systems thinking, “the capacity to see deeper patterns lying beneath events and details” contextualized and situated by appreciative regard for interconnections and interrelationships, according to Bui and Baruch’s article, “Learning Organizations in Higher Education: An Empirical Evaluation Within and International Context.”<sup>15</sup> Finally, write Rowley and Gibbs, building organizational learning capacity requires furthering organizational ability to direct and adapt learning processes.<sup>16</sup>

Intentional organizational learning can also be appreciatively viewed and significantly enriched through an information experience lens, whereby participants collectively expand their information horizons by engaging with new information types and communication processes. Establishing requisite information-sharing relationships that extend beyond traditional team boundaries requires holistic appreciation of the interrelated elements of workplace information experience: its “situatedness,” or its connection with informed learning and informed decisions; and its cognitive and social dimensions, through critical and creative information use that produces generation and sharing of new knowledge useful in taking purposeful action, according to my 2014 article with A. Mirjamdotter.<sup>17</sup> In response, Informed Systems (re)learning models, conducted within enabling systems infrastructure, further collaborative professional processes that are learning-focused and information intensive, to promote sense-making and enable workplace learning.

As conveyed in antecedent theoretical literature for Informed Systems and corroborated in seminal works on organizational learning, “knowledge and understanding are ... learned through active... practice by an individual, within the larger body of practice,” writes Schön.<sup>18</sup> A community of inquiry situates and contextualizes inter-subjectively created meaning, which changes over time through renegotiation.

Then, as “new explicit knowledge is shared throughout an organization, other employees begin to internalize it—that is, they use it to broaden, extend, and reframe their own tacit knowledge,” observes Nonaka,<sup>19</sup> and through “purposeful discourse focused on exploring, constructing meaning and validating understanding,” as stated by Garrison.<sup>20</sup> Therein lies the genesis of informed learning fortified by systems design.

Since 2008, practical outcomes at the University of Colorado Denver have confirmed the efficacy of an Informed Systems approach to organizational learning. Over time, as shared appreciation grew for an education focus rather than a service focus, a consultative (learning) mindset replaced earlier transactional (“busyness”) priorities. Concurrently, collective conceptions shifted from “library as warehouse” to “library as learning space” and “systems thinking” replaced “silo thinking,” concepts illustrated by myself and Farner in 2012.<sup>21</sup>

Illustrative of the potential of cross-functional collaboration across traditional departmental boundaries, a single search box on the library website now offers a Google-like advanced search—enhanced by “value added” faceted search features—of all owned and licensed text, video, and image content. As I wrote in *Serials Review*, “this represents a collaborative effort, over more than eighteen months, across technical, public, and technology services units, which continue to collaborate on the next discovery layer version release.”<sup>22</sup>

These outcomes recognize that, because organizational culture is experienced as a shared basis of appreciation and action, as defined by Schön,<sup>23</sup> it can be transformed through persistent communication sustained by learning relationships. Therefore, within an Informed Systems framework, action-oriented inquiry is paired with inclusive decision-making fortified by inquiry-based dialogue and information-centered reflection.

#### LEARNING THE WAY TO WORKPLACE LEARNING SYNERGIES

Organizational learning requires that, for learning to occur, information encounters must be experienced as sufficiently contextualized to activate and extend prior understanding, according to Bruce.<sup>24</sup> As described in a 2014 book chapter by myself and Mirjamdotter, when the workplace is conceptualized in this way, people can learn to create knowledge on the basis of

» **Over time and with practice, workplace processes and activities transform organizational culture. Reactive and conservative impulses are transformed to proactive and generative responses, enabled by rich relational information experiences and social interaction opportunities among workplace participants that, increasingly, engage organizational beneficiaries.**

their concrete experiences by observing and reflecting on that experience, by forming abstract concepts and generalizations, and by testing the implications of these concepts in new situations, which lead to new concrete experiences that initiate a new cycle. This assertion fortifies our aspiration to develop reflective practitioners who learn through critical (and self-critical) collaborative inquiry processes that foster individual self-evaluation, collective problem-formulation, inclusive contextualized inquiry, and professional development.<sup>25</sup>

In learning the way to workplace synergies, informed learning serves as a theoretical construct which encourages exploration of learning-related aspects of information experience, defined by Hughes as “contextualized instances of using information. It integrates all information-related actions, thoughts, feelings, and has social and cultural dimensions.”<sup>26</sup>

Informed learning also provides a pedagogical framework, which encourages expansion of learners’ information using and information learning experiences. In other words, informed learning enables making increased sense of multiple information experiences through intentional expansion of information encounters and, thereby, information experiences.

As colleagues learn to initiate and sustain inquiries and design actions that are information-centered, action-oriented, and learning-enabled, their mental models change. They reinvent roles, responsibilities, processes, and relationships as active collaborators in the process, and they co-design their future, guided by the question Bruce posed in her Keynote Address: “What information and learning experiences are vital to furthering our own professional work?”<sup>27</sup> As the examples in the previous section illustrates, compelling questions shift as organizational focus shifts.

Members of contemporary information and knowledge organizations must create information-rich learning environments

for themselves before they can activate information-rich learning experiences for others. Within teams, individuals must learn to co-create knowledge-enabling systemic structures and workplace processes for “knowing” their local and global information landscapes.

Co-designed learning activities can then generate workplace synergies that activate knowledge creation and sustain social interaction. These robust relationships will encourage sharing of information, skills, expertise, and experience exchanged through co-designed professional practices that further repurposing, redirecting, reorganizing, and relearning for forward movement and nimble responsiveness. In addition, the co-designed communication systems and socialization practices—which determine how organizations function and change, as well as how they adapt and encourage inquiry, dialogue, and reflection—produce ever increasing variation and complexity in information experiences.

These essential learning elements are embodied in the holistic Informed Systems transformation approach shown in the **accompanying figure**. Its elements represent the co-creation of an informed learning workplace environment, which requires the presence of an appreciative systems lens supported by shared organizational vision and process philosophy. Then co-designed systems infrastructure and professional information practices facilitate a continuous learning cycle that advances capacity to successfully navigate familiar situations and establish appropriate learning processes for finding, valuing, and using information to learn in unfamiliar circumstances. This necessarily involves placing information in a larger context and seeing it in the light of broader perspectives and experiences to ensure ethical and sustainable decisions, as defined by Rowley & Gibbs in their article, “From Learning Organization to Practically Wise Organization.”<sup>28</sup>

Over time and with practice, workplace

processes and activities transform organizational culture. Reactive and conservative impulses are transformed to proactive and generative responses, enabled by rich relational information experiences and social interaction opportunities among workplace participants that, increasingly, engage organizational beneficiaries. In such a vibrant learning environment, knowledge emerges through meaningful encounters that transform prior understanding within individuals and among groups.

Such practice of organizational learning involves developing tangible activities: new governing ideas, infrastructure innovations, new management methods, and technology tools for “changing the way people conduct their work. Given the opportunity to take part in these new activities, people will develop an enduring capacity for change...with far greater levels of diversity, commitment, innovation and talent,” writes Senge.<sup>29</sup> In addition, he continues, “people will continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together.”<sup>30</sup> ■

**AUTHOR’S NOTE:** These ideas were originally presented at *Organizational Learning Theory and Workplace Design Elements: Enabling Conditions for Organizational Learning in Libraries*, at “Lifelong Learning for Libraries: Organizational Learning Theory to Manage Change,” sponsored by Library Leadership and Management Association (LLAMA) at the American Library Association 2015 Annual Conference, San Francisco, California.

For more information, see Mary M. Somerville. (2015). *Informed Systems: Organizational Design for Learning in Action*. Oxford, England: Chandos Publishing.

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