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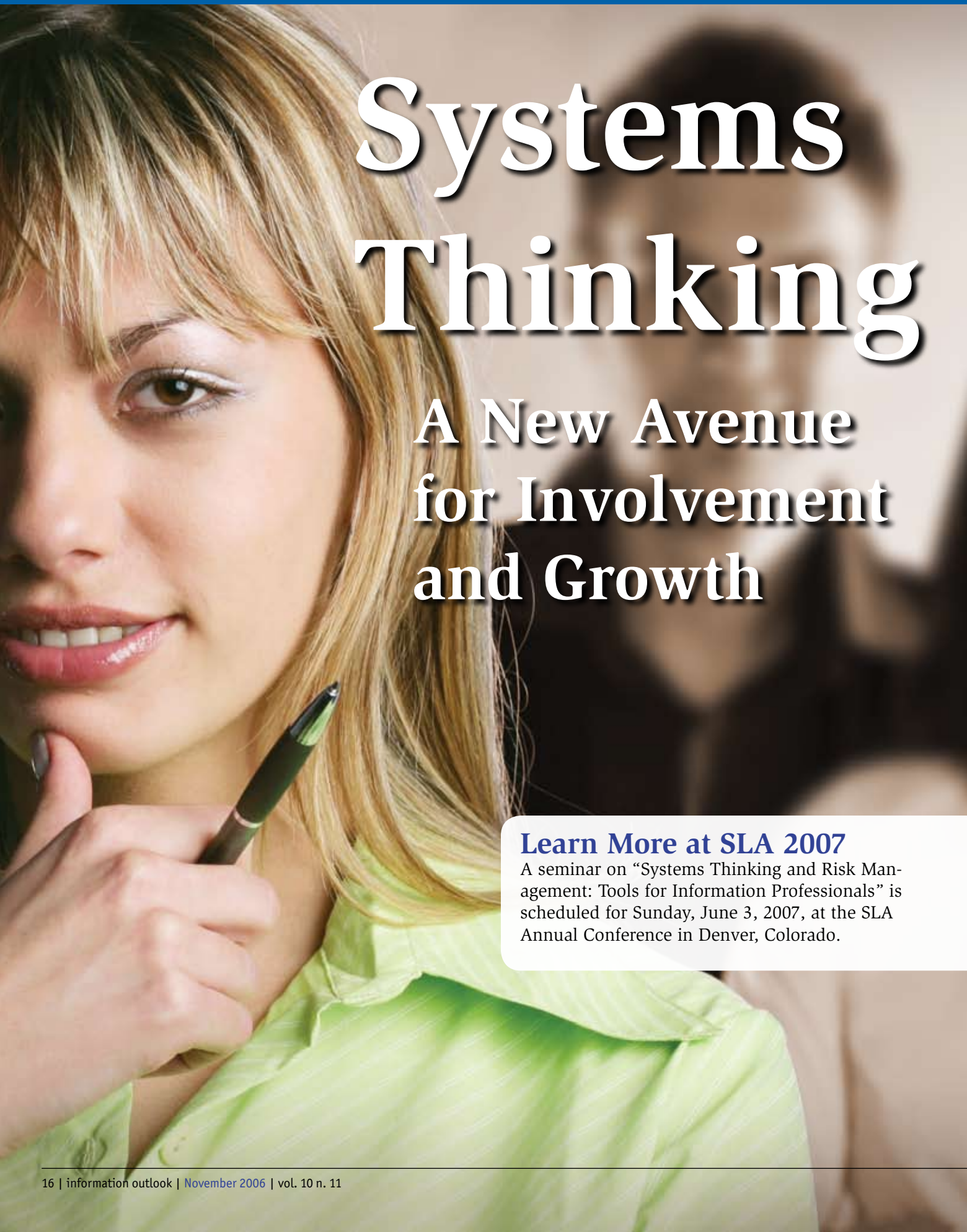

Systems Thinking

A New Avenue for Involvement and Growth

Learn More at SLA 2007

A seminar on "Systems Thinking and Risk Management: Tools for Information Professionals" is scheduled for Sunday, June 3, 2007, at the SLA Annual Conference in Denver, Colorado.

By Lorri Zipperer and Sara Tompson

A solo librarian in a mid-sized product development consulting firm is routinely faced with service problems due to lack of support and increasing requests for his professional services. The problems result from a change in behaviors of the professional staff. This group has been engaged in more continuing education, and the staff members have been doing more primary research in response to a leadership challenge to improve their own knowledge base, and thereby improve their professional status.

One Friday, upon receiving an expedited instant-message request from one of the firm's top-performing consultants for 15 articles to be obtained and delivered right away, the librarian responded that it is the information center's policy that staff obtain articles themselves through the digital library. The consultant—a library champion and frequent user—was not at all pleased with this response and arrived in person at the information center to express her discontent. She is an extremely busy professional who has a complicated travel schedule and notoriously demanding clients. The librarian proceeded to try to train the consultant on how to find, download, and print the materials directly from her PDA. However, this approach just added fuel to the fire—the consultant did not understand why the librarian would not simply get the articles for her.

Middle management at the organization had put up some resistance to the information center's new self-service model, but they had accepted it begrudgingly. Managers are still heard around the water cooler complaining about it and saying that they tend to read less as they feel it is such a hassle to find and print their own materials. As news of what some staff members considered his refusal to help them has spread through the consultant ranks, the librarian has found that requests for document retrieval have dropped off, which is what he wanted. However, invitations for the librarian to participate on product development teams and become involved in innovation activities have dropped off as well.

The librarian had designed the digital library with efficiency in mind, to enable staff at all levels to access materials any time of day. However—because he felt professional staff didn't have the time or interest to engage in the process—he didn't involve anyone else in the planning and set up, or in projecting its effect on existing services. If he allows staff to call on him for routine research, his more critical and specialized services would delayed. Therefore, he decided to stand firm on the self-serve policy.

Systems thinking might have helped prevent the problem.

What Is Systems Thinking?

Systems thinking is a means to deeply understand and recognize the interconnectedness of roles and services in organizations. Systems thinking was introduced to a widespread audience by Peter Senge in *The Fifth Discipline*; it is built upon both systems engineering and organizational psychology tools (Senge, 1990). Systems thinking enables one to see how an individual's activities affect the larger environment (Sterman, 2006). Systems thinking facilitates a shift away from blaming individuals or departments—IT and demanding staff (as illustrated in the opening scenario) are common scapegoats for librarians—to look at how an entire organization may be contributing to a problem (Goodman, 2006).

The goal of systems thinking is to ensure that strategies are built to optimize and fully respond to interactions within organizations, rather than making them confrontational and thus less effective. Systems thinking enables a mature understanding of the interaction between entities—that is, individuals, departments, and business units—within an organization. These interactions produce behaviors that feed back into the overall work processes and output of the organization. This analysis centers upon breaking down organizations and issues into component parts, a key aspect of the systems thinking approach, and can result in strikingly different conclusions than those generated by traditional forms of analysis, especially when what is being studied is complex or has a great deal of feedback from other sources, internal or external.

Adoption of a systems thinking approach can position information professionals to work more effectively in their respective organizations. Systems thinking requires asking "*Why?*" more often than may seem normal. Systems thinking also requires digging deeper to learn the root causes of problems, and it requires building multidisciplinary relationships. Through these new ways of analyzing and interacting, a systems-thinking information professional can:

- Minimize risk.
- Realize sustainable programs and improvements.
- Highlight goal-oriented contributions through strategic insight and observations.

Systems thinking has been embraced by innovators in health care in the quest to reduce medical error (Leape, 1994). Information professionals have recently noted the value of seeing information and knowledge transfer from a systems thinking perspective (Corliss, Tompson and Zipperer, 2005). However, thus far no empirical evidence has been gathered to determine whether systems thinking is used in, or resonates for, librarianship.

To address this evidence gap, the Systems Thinking Perspectives: Innovation in Knowledge and Information Delivery assessment program was launched in 2005. The work builds upon several projects by overlapping researchers, including work to understand the librarian's role in patient safety and other broader-based educational programs for librarians (Zipperer and Sykes, 2004; Zipperer, Corliss and Tompson, 2005.) The project Web site—www.sla.org/division/dbio/Systems—provides tools to explore one's acceptance and

application of systems thinking behaviors both at a "community of practice" level and within one's own organization. The Systems Thinking Perspectives Web site is hosted by SLA's Biomedical and Life Sciences Division and was funded by a 2004 SLA Endowment Fund grant.

Systems Thinking and Librarians

A primary goal of the Systems Thinking project was to help information professionals see the myriad of interactions that are at play in what may appear, on the surface, to be straightforward workplace transactions. The project sought to get a snapshot of how information professionals view themselves in the context of systems thinking behaviors. An online assessment tool was used to collect data from the field.

The assessment tool was distributed to begin to quantify librarianship's adoption of Senge's systems thinking behaviors and help information professionals "walk the talk" of the systems thinker (Senge, 1990). The availability of the assessment tool was announced on various SLA and information professional electronic discussion lists, written up in newsletters, and mentioned in educational forums on the topic to raise awareness and increase response.

The assessment was designed to stimulate reflection on:

- How information professionals view themselves in relation to their organizations.
- How personal philosophies enhance one's ability to contribute to the overarching goals of the organization.
- How work behaviors play a part in learning, growth and change management.

The tool focused on behaviors that support a systems thinking perspective in four key areas as defined below.

- **Interconnectedness.** A system is a group of interacting and interdependent components that form a unified and more effective whole. Systems thinking emphasizes the relationships among a system's parts, rather than the parts themselves.
- **Partnership and leverage.** Partnership involves respecting co-workers and encouraging them to believe that they can contribute to solutions. Tapping the insights and knowledge of all persons in the community facilitates opportunities to leverage experience, resources, and expertise to produce the best organizational decisions and results.
- **Personal mastery.** Individual learning is a key component of personal mastery. It involves defining a clear vision of what one wishes to achieve and then setting a goal to accomplish it.
- **Discussion and dialogue.** Inquiry, conversation, listening, and understanding in an atmosphere of trust and respect can lead to breakthrough ideas and creative energy. Dialogue and discussion don't just happen. They generally need to be orchestrated through conscious efforts to build an opportunity and to prepare personally for this level of exchange.

Individuals who took the assessment were instructed to reflect on their style of working with others. This direction toward introspection was intended to encourage individuals to embrace systems thinking. In a further effort to make systems thinking more clearly applicable to information professionals, the project team set up a "crosswalk" with the SLA competencies (Competencies for Information Professionals, 2003). These links make analogies between some key and well-understood competencies concepts and systems thinking tools and views. In addition, the tool and the site were arranged to make it easy for participants to learn more about systems thinking through materials made available on the site and through peer discussion, facilitated by the blog. The researchers hoped that after individuals took the assessment tool, they would then employ systems thinking methodologies to interact more effectively with their environments from a proactive and innovative platform.

What We Learned

As of September 1, 115 respondents had completed the assessment. The tool remains available online (at www.surveymonkey.com/s.asp?u = 88692854536) and it is expected that some additional responses will be received because of this article and other systems thinking discussions.

The data from the responses thus far indicates that librarians view themselves as exhibiting key systems thinking behaviors, as discussed below. The tool ranked participants' levels of agreement with statements about key systems thinking paradigms.

- **Interconnectedness.** 80 percent agree (strongly agree and partially agree combined) that they view their work as part of many networks. Increasingly, information professionals and librarians are attuned to organizational objectives and priorities and attempt to align their priorities with organizational initiatives.
- **Partnership and leverage.** 71 percent agree that this is part of their jobs. Information professionals understand that effective interaction with other departments and other professionals is crucial to their success.
- **Personal mastery.** 75 percent agree they exhibit this level of self-awareness. Overall, information professionals are quite positive about their engagement in sharing knowledge and in encouraging others to share knowledge.
- **Discussion and dialogue.** 86 percent agree they regularly do both. There are more "strongly agree" responses in this section than in any other sections of the survey.

The sum of the "not sure and disagree responses" are:

- **Interconnectedness.** 32 percent don't actively participate in planning in general, or planning for new initiatives.
- **Partnership and leverage.** 37 percent can't easily identify key stakeholders.
- **Personal mastery.** 38 percent don't spend time around their clients to understand their information needs.
- **Discussion and dialogue.** 19 percent don't actively facilitate a non-threatening environment when seeking solutions or exploring opportunities for improvement.

Discussion

Information professionals must be good communicators to succeed. Two of many illustrations of this necessity include the reference interview—a structured communication technique that is core to the pro-

fession—and the fact that librarianship is a service profession and as such requires interactions with many people. Therefore, it is not surprising that the assessment results indicate high levels of agreement for the systems thinking practice of discussion and dialogue.

The low number of "agree" responses to the interconnectedness question about planning indicates lost opportunities for many information professionals to affect and drive information and knowledge sharing strategies at the organizational level. Being involved in the planning of organizational initiatives is an important way to have a broader and more effective impact on the overall organization and its information use.

The fact that close to 40 percent of the respondents don't strongly identify with stakeholders in their organizations is troubling. As a profession, librarians should explore how communications with other members of the organizations, especially with thought leaders and decision makers, can become more proactive and strategic.

While the majority of respondents to the Systems Thinking assessment agreed they are consciously focused on opportunities for dialogue and discussion, close to 20 percent said they are not. It is likely that for most adults the notion of building dialogue into busy schedules can be a challenge, partly because of time constraints. This reluctance may also partly arise from discomfort at: replaying difficult conversations, actively soliciting others' points of view, or working with others with whom one has had difficulty in the past to achieve outcomes that are more satisfactory in the future. Nevertheless, these are the sort of conversations that information professionals should initiate to become more successfully integrated into their organizations.

Given the limited response to the assessment as announcements of the program and the tool availability were distributed to the SLA membership at large (with a targeted focus on the Biomedical, Engineering, and Leadership and Management Divisions and the Illinois Chapter) the authors considered that the numbers may reflect the "Lake Woebegone" effect: Only those who are "better than average" in systems thinking areas completed the survey. Also, there was significant drop off (one third) in responses after the first set of questions. This drop off may have occurred as the respondents' desire to self-assess dissipated or because the assessment was seen as too long or too challenging, or no longer of interest.

Applying Systems Thinking

This question of how librarians can apply systems thinking—which spurred the project and the assessment tool at the core of it—still needs to be addressed. Looking back at the scenario that opened the article, some systems thinking perspectives could be applied that could prevent, or mitigate, the isolation and ineffectiveness the librarian was starting to experience.

A systems thinking analysis would reveal that the librarian chose a quick response to a tough situation but did not consider the unintended, long-term consequences on the library or the staff and the organization—the other parts of the system with which the library was involved. A bigger-picture response to his frustration as a solo librarian who was asked to help move initiatives forward, but also was overwhelmed by article retrieval tasks, could have provided alternatives. In addition to keeping the interconnectedness of the firm in mind, his adoption of a systems thinking perspective could enable him to leverage partnerships, initiate discussions and dialogues, and become a

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better master of his professional self.

Briefly, these four principles could have been applied as follows:

• Interconnectedness

- The librarian could present service levels and priorities to the staff to illustrate the impact of article demands upon a variety of units and individuals engaged in moving the firm forward.
- He could involve a variety of staff from various departments to ensure buy-in of the new self-service approach.

• Partnership and leverage

- The librarian in the scenario could build a multidisciplinary team to work on the structure of the digital library and its services, which would both ensure buy-in and garner him some willing partners for implementing it.
- The relationships built by these sorts of interactions could leverage the librarian's "capital" within the firm—raise the profile of the information center and highlight his professionalism.

• Personal mastery

- Part of personal mastery is continually learning how to see current reality more clearly (Senge, 1990). The librarian could do this by seeking to understand the consultants' work and knowledge sharing activities more clearly in order to best design services and staff outreach
- Work with instead of against the creative tension between current reality and his vision of a digital library, by, for instance, being candid about his plan with management and the consultants—his customers, and educating and advocating to get their buy-in.
- Set goals to achieve a deeper understanding of the long-term expectations of his organization and how they fit his personal career vision.

• Discussion and dialogue

- The librarian could have invited the consultant to discuss the situation and brainstorm about solutions for the future, including ways to require some level of self-service without making inappropriate demands of the users' time. The librarian should pick up the tab!
- The librarian could be a proactive facilitator, and bring together the consultant and middle management staff to talk to them about their needs and then act upon what was learned.

Plans

This SLA-funded assessment project was one of the first, if not the first, effort to obtain some data on information professionals' views of themselves as systems thinkers. As systems thinking is still very new to the profession and the library literature , the tool also served as an introduction to systems thinking for many of the respondents. The data should be considered preliminary. Nevertheless, the project successfully identified big-picture perspective gaps in many of the respondents' world views, where a systems thinking approach could serve as an important bridge.

The authors, in collaboration with various partners, are working to introduce systems thinking more broadly to the profession. A systems thinking continuing education course with a risk/benefit approach, based in part on successful systems thinking models in the health care arena, will be delivered at the 2007 SLA Annual Conference in Denver. Several possibilities for peer-reviewed articles on systems thinking in librarianship are under consideration.

References

Competencies for Information Professionals. 2003. Washington DC, Special Libraries Association. Available at: www.sla.org/PDFs/Competencies2003_revised.pdf

Corliss Rebbeca, Sara Tompson, and Lorri Zipperer. 2004. Systems thinking: a stepping stone to information professional integration. Business Information Alert. 16 (10): 1-4, 11.

Goodman Michael. 2006. Everyone's problem to solve: using systems thinking cross-functionally. The Systems Thinker. 17 (5): 6-8.

Leape Lucian L. 1994. Error in medicine. Journal of the American Medical Association. 272 (24): 1851-1857.

Senge Peter M. 1990 The Fifth Discipline. New York, Random House.

Sterman John D. 2006. Learning from evidence in a complex world. American Journal of Public Health. 96 (3): 505-514.

Zipperer Lorri, Rebecca Corliss and Sara Tompson. 2005 Systems Thinking for Librarians: Basic and Personal Approaches. Continuing education course presented at Special Libraries Association Conference; June 5, 2005; Toronto. http://isd.usc.edu/ ~ sarat/CE_SLA2005_Part1_fnl.pdf

Zipperer Lorri and Jan Sykes. 2004. The role of librarians in patient safety: gaps and strengths in the current culture. *Journal of the Medical Library Association*. 92:498-500.