An Introduction to Systems Thinking for Librarians

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Introduction

According to environmental scientist and educator Donella Meadows, a system is a "set of things –people, cells, molecules, or whatever—interconnected in such a way that they produce their own pattern of behavior over time" (Meadows, 2008, p. 2). She further defines the system as being organized in such a way that it achieves an overall function or purpose. It is composed of interrelated elements which work together and never work independently of the whole. Every action of an individual system element has an impact on other system elements and on the behavior of the larger system in which it exists and operates.

Based on Meadows' general description it is not difficult to envision the academic library and its various components as a system. Thinking more expansively, we can understand the library as a component of the larger system that is the college or university. In this essay I will introduce systems thinking generally and then discuss the ideas of systems thinker Barry Oshry. Oshry focuses specifically on the roles and responsibilities of individuals within the system. His thoughts are straightforward and pragmatic, and the points he makes about life in a system and his suggestions for improving it should be relatable to all.

A History of Systems Thinking

The traditional conception of our world owes much to the writings of 17th century thinkers Rene Descartes and Isaac Newton. Descartes' philosophy and Newton's mathematical theory created a mechanistic interpretation of the world, a conception of the world as a vast, ordered machine which obeys and works in accordance with immutable physical laws. In such a machine model, it is imperative one understands the individual parts which comprise the machine. When faced with a problem, the traditional approach is to reduce the machine to its smallest components, analyze their individual structures and characteristics, and then aggregate what was learned into an explanation of the whole. This approach is known as reductionism. Centuries after Descartes and Newton it remains common practice to begin the analysis of a problem by breaking it into smaller and more easily understood units (Capra, 1982; Haines, 2000).

But by the middle of the 20th century it had become apparent to scientists and other thinkers that our new knowledge of the natural world, the increasing complexity of our modern

society, and the increasing prevalence of technology, had rendered this classical interpretation of our world inadequate. New sciences like quantum physics and chaos theory directly challenged the traditional conception of the universe as an ordered, predictable machine. In an increasingly complicated and highly synergistic world, the traditional mechanistic and linear interpretation simply could no longer account for the full range of experiences.

In 1936, Austrian biologist Ludwig von Bertalanffy first proposed what he called a General Systems Theory. In it, he put forth a view of the world which focuses on the whole as opposed to the traditional reductionist focus on individual components. For Bertalanffy, a system is best characterized by the interactions of its various parts and the fact these interactions are non-linear and multi-directional. The behavior of individual components and the localized explanations derived from their study can no longer account for the complexity of the modern world (DeLisi, 2021).

Bertalanffy suggested his theory could be applied not only to biology but to other fields as well, and the second half of the 20th century saw his General Systems Theory principles incorporated into the physical, social, and behavioral sciences, management and organizational studies, and philosophy. Some of the more notable names to incorporate systems thinking into their work include social scientist Gregory Bateson, physicist and ecologist Fritjof Capra, computer engineer Jay Forrester, and organizational theorists Peter Drucker, Russell Ackoff, and Peter Senge.

For the systems thinker, the world is a complex web of interlinked and interacting parts. Every action an individual or a group of individuals undertakes has an impact on others in the system and on the system itself. Every part of the system interacts with, reacts to, and ultimately changes the whole system. Organizations are systems, and every member of an organization has the ability to effect change.

The system thinker whose work we'll explore in this paper is Barry Oshry. Oshry began his career at Boston University studying and teaching in the field of organizational behavior before founding Power + Systems Training, Inc. in 1975. Since then he has used his consultancy to offer workshops on the topic of organizational effectiveness to a wide variety of corporate and organizational clients. He is the author of more than half a dozen books and numerous articles on the topic of seeing, understanding, and reaping the benefits of systems in organizations. While many systems thinkers concentrate on the structures and/or the processes of systems themselves (e.g. identifying and fixing system problems, feedback loops, leverage points), Oshry focuses on the individuals working within an organization and how their responsibilities, their attitudes, and their relationships with one another contribute to (or take away from) the overall

health of the organization. His practical explanations of system dynamics are helpful as we seek to make sense of our own organizations.

The Holon

Before going farther into our exploration of systems, the concept of the holon needs to be introduced. This concept was first proposed by Arthur Koestler in his 1967 book The Ghost in the Machine. A holon is defined as something which exists both as a self-contained, independent whole and as a dependent part of a larger whole. The concept of the holon is a key component of systems thinking. It reminds residents of the system of the complex, fluid, and non-linear nature of the system and the need to maintain a holistic perspective at all times (Donaldson, 2021).

In the case of an academic library, a department is a perfect example of a holon. On the one hand, it is charged with its own particular mission and functions, while at the same time being answerable to the larger library. An Access Services department, for example, oversees its own checkout and return, holds, and course reserves operations, but it does so while using the same library management system as other departments and while observing the service standards and goals of the larger library. Or it can be a project workgroup charged with completing a defined and time-limited task in support of an annual goal. And, of course, the library itself is a sub-unit of the institution to which it belongs, maintaining its purpose and undertaking its activities as a definite entity (i.e. the library) while at the same time serving the goals the institution has set for itself.

Whole System Processes

In *Leading Systems: Lessons from the Power Lab*, Oshry identifies three pairs of system-wide processes common to a successfully functioning system. While seemingly contradictory, each pair is needed (in the right proportions) for system health. The three pairs are:

- Individuation versus Integration – members in a system operate separately from one another, but they also interact with one another and contribute to the health of the whole system. In the case of a library, we might point to a cataloger, whose job is distinct from others' roles and does not have an obvious public service component (individuation), yet whose work helps reference and liaison librarians locate materials for users and perform literature searches (integration). Another example is service desk staff, who discharge distinct services at their desks but who also observe and contribute to the evolution of the customer service ideals of the library.

- Differentiation versus Homogenization – the system develops a variety of forms and functions, yet there is commonality spread through them in the forms of systems knowledge, motivation, and workflows. A library is comprised of a variety of departments with distinct personalities, such as interlibrary loan, the library's business office, and special collections (differentiation), but commonality can be found in the fact they all share a basic understanding of the role of the library as an organization which provides services and collections to help users achieve their academic goals (homogenization).

- Stabilization versus Change – systems maintain a stable form and function over time yet they also morph and undergo evolution. Systems are, by nature, dynamic. Academic libraries have maintained a consistent identity over time, always serving as a place to access information and receive help with research (stabilization), but in recent years they have redesigned spaces to meet new user needs and have introduced contemporary offerings such as digital makerspaces and the ability for faculty to partner with library staff to explore and develop open educational resources (change).

All six processes are required for proper system functioning, and a balance is needed between each pair. If only one component of a pair is present, or is present in a significantly greater proportion than its pair partner (and its exaggerated presence will come at the expense of its partner), a system will become unbalanced.

Libraries should seek to maintain these balances, and should seek to correct the balance when one member of the pair becomes predominant at the expense of the other. Granting individual departments within the library the autonomy to control their own workflows and make their own decisions is generally regarded as a good thing (and appreciated by staff in those departments), but it can become detrimental to the organization if departments lose sight of the overall goals of the library in pursuit of their own ends. Library leaders also have to be careful when introducing change. Change made too rapidly, or too many separate changes made simultaneously can lead to employees becoming overwhelmed and unsure of their roles. In the case of change initiatives, a more moderate approach is advised.

This having been said, there may be times when one of the pair is purposefully given prominence. When designing a new space in the library (for example, removing print book shelving to create a new student-focused space), a temporary emphasis on Change over Stability will help the project move forward. If a library refuses to deemphasize Stability it could end up with a half-hearted (and perhaps ultimately ineffective) space redesign. Or it could derail the

project entirely. The same temporary rebalancing of processes is needed in other situations as well, such as when introducing a new service to the library or creating an entirely new position within the organization. Once the project has been completed, the two processes can return to a state of more even balance.

The Problematic System

In an ideal world, a system will function smoothly and effectively, meeting the goals it has set for itself and developing positively into the future. It will have a healthy balance of the processes mentioned above and a clear sense of purpose. But as any student of leadership and management knows, the real world very rarely presents us with situations which we would call ideal. Much more frequently, we are faced with problematic situations: new initiatives which have stalled; leaders who do not share necessary information in a timely fashion (or at all); a lack of cooperation between parties; employees who lack engagement and feel demotivated and unfulfilled.

Oshry identifies the characteristics of an unhealthy system not living up to its potential:

- Employees view themselves not as important components of the whole but as autonomous individuals
- Employees know their part of the system but they neither understand nor appreciate other parts of the system
- Since an understanding of the whole is never achieved, growth and development opportunities are missed
- And in the end, the system fails to realize its potential

In academic libraries, what's being described above is commonly referred to –and frequently experienced– as siloing. The traditional structure of the library is one of distinct units with distinct functions –technical services, library systems, reference and instruction. Since these units have different functions and, in some cases, different audiences, it is common for them to put all their attention on themselves and their responsibilities. Other circumstances, such as a sense of territoriality or a lack of trust in certain individuals outside the department, can contribute to siloing. And the silos can become especially pronounced when the difference is between the main campus library and a departmental library, or between the main library and special collections.

For Oshry, this siloing blinds an organization to possibilities for development and ensures it will not achieve its full potential. One of the cardinal sins of employees within an organization

and a key reason why organizational potential frequently goes unrealized is what he calls context blindness.

Context Blindness

Oshry describes context blindness in his (appropriately titled) book *Context, Context, Context: How Our Blindness to Context Cripples Even the Smartest Organizations*. Individuals and groups of individuals suffer from context blindness when they do not know what life is like in other parts of the system. While they understand the local contexts in which they operate, they do not understand the concerns, challenges, and aspirations of individuals elsewhere in the system. Problems arise when local explanations, assumptions, and beliefs are applied to other parts of the system which do not share these unique local characteristics.

When we misunderstand someone at a different level in the system or don't agree with what they are proposing or receive incomplete (or no) information from them, it is common for us to create reasons for this individual's behavior. We dislike mysteries so we fill in the blanks according to our own feelings and experiences, and we then allow our stories to become truths. We react personally by getting angry or withdrawing. The explanation may be as simple as someone is very busy and overlooked an email or simply misunderstood the intent of the question. But the result of the misunderstanding can be sabotaged teamwork (which can become entrenched divisions between individuals and units over time) stalled progress on initiatives, and missed opportunities, both for the individual and for the organization.

It is vital for us to see and appreciate the contexts in which we and others work. Again, a system is not a collection of individual, self-determining units, but rather an interlinked, interactive network of individuals and units working for a collective good. A library is a collection of units working toward a shared, clearly-defined end goal. Understanding the larger context and seeing ourselves within it makes us less likely to fall into dysfunctional patterns of behavior, less likely to react personally, less likely to withdraw and become non-participative. Having a larger sense of context makes us more likely to empathize, understand others, take advantage of opportunities as they appear, and work in ways beneficial to the organization and ourselves. For Oshry, context blindness is a guarantor of system and organizational failure. Seeing context is a must for all members of a healthy organization.

The Parts of the System

Oshry treats the individuals who comprise the system at length in both his *Seeing Systems: Unlocking the Mysteries of Organizational Life* and *The Possibilities of Organization*. He

refers to them as Tops, Bottoms, and Middles. He also lists Customers as a player in the system, though this group will not be addressed here. Interestingly, in his 1977 work *Power and Position*, Oshry refers to the three groups as Directors, Members, and Middles. It could be argued the term Members is a kinder term than Bottoms, though it will be clear from what follows Oshry considers Bottoms to be every bit as essential to the success of the system as the other two groups. Let's look at the roles each of the three groups play, as well as the challenges faced by them.

Tops

The Tops are the System Developers. They are responsible for sharing the big picture with other members of the system, asking members for input and help when dealing with challenges and exploring opportunities, and for helping members develop their strengths and overcome their weaknesses.

But the Tops exist in a world of complications. They face an unending flow of matters to be handled, many of which are complex problems and some of which have risen to crisis status. Their job is made more complicated by the fact they receive conflicting input from people in different parts of the system. For Tops, there is too much work to do and not enough time to do it.

Bottoms

The Bottoms are System Fixers. They are charged with alerting higher-ups to problems and issues needing resolution, and for clarifying the costs these issues have to themselves and the organization. Their unique position as the hands-on employees closest to a situation makes them responsible for helping the system avoid dangers and seize opportunities, and they can provide the input needed to improve system functioning.

The Bottoms, however, live in a world of vulnerability. They feel invisible and always on the receiving end of the decisions which impact their lives. They feel it is an Us versus Them world and that others hold the power. They feel a need to protect themselves and be protected against Them.

Middles

Middles are the System Integrators. They are responsible for sharing information about their parts of the system and for coordinating system functioning, reducing duplication of effort, and moving resources to where they are most needed. They strengthen the system by leading and integrating as appropriate. Their position in the figurative "middle" of the organization allows them to see more than either the Tops or the Bottoms. As such, they are better able to recognize and diagnose system issues, including emerging ones.

But theirs is a world of tearing. They are expected to fulfill the needs of the Tops, yet at the same time fulfill the needs of the Bottoms. In many cases, the expectations of these two groups are at odds with one another, making Middles feel they are being pulled in different directions. In the world of the Middle, pleasing one person may mean displeasing another.

It is not difficult to identify the members of these three groups within the academic library. The Tops are, of course, the Dean and the library administration; the Bottoms are front line staff working at service desks, in building services, and in office support positions; the Middles are department heads and individuals who supervise small units or work groups. The academic library can easily be slotted into these three groups, though as we will see, life in the system is not as simplistic as it may appear.

The Dance of the Blind Reflex

Given the challenges these three groups face it is not uncommon for individuals in these positions to fall into certain unproductive mindsets. The mindsets can lead to behaviors which have a deleterious effect on the health of the system. Oshry calls this the Dance of Blind Reflex. Let's look again at the three groups and see what it means for each.

Tops

It is common for Tops to fall into a mindset of Burden. They feel overwhelmed by the complexity and constant responsibility inherent in their role. They experience feelings of being isolated and unsupported. As "the leader," they pull responsibility away from others and towards themselves, in turn pulling opportunities (to learn, grow, and achieve) away from others. They identify priorities and make decisions because priorities must be identified and decisions must be made, but they aren't always sure these are the right decisions. They feel their actions are based on incomplete and, in some cases, contradictory, information.

Bottoms

Bottoms fall into an attitude of Oppression. They feel oppressed by their higher-ups and by the system itself. Because of their position on the lower rungs of the hierarchy, it is easy for them to feel disenfranchised. This causes them to focus on the negative conditions in the system and to cede responsibility for addressing and fixing these shortcomings to the higher-ups. They feel angry and disappointed, mistreated and unrecognized. In the end, they feel they have very few options for dealing with their oppression.

Middles

The Middles feel Torn by the demands and expectations of others and become weak, confused, and powerless. They feel they fall between others' conflicts and as a consequence they

make others' issues and conflicts their own. Feeling they can't successfully satisfy the (many times contradictory) demands of people both above and below them, they end up simply reacting to situations instead of trying to influence them. They lose their independence of thought and action and become convinced they are never doing enough.

In such an environment, where individuals (regardless of group) are isolated, ineffective, and unsure of themselves, people feel justified in blaming others for the ills of the system. Bottoms and Middles commonly cede all responsibility for fixing system problems and setting system direction to the Tops. Tops blame Bottoms and Middles for not providing the support and the clarity they feel they need. Members eventually become frustrated and withdraw into themselves. And the system suffers.

We Move Between Conditions

Oshry refers to being a Top, Bottom, or Middle as a condition in which an employee falls. While every employee has a primary condition, one described by their position description and in which the majority of their working hours is spent, everyone spends some time in the other two conditions. Different circumstances and responsibilities mean different conditions. A Dean of Libraries, for example, will be a Top when supervising others and administering the affairs of the university library, but she will become a Middle (or perhaps even a Bottom) when sitting in a meeting with the university President or presenting to the university's Board of Trustees. An individual who would identify his role within the library as a Bottom becomes a Top when supervising a group of student workers completing a departmental project. An employee leading a project to decide upon a course of action with an ultimate report out to library leadership is a Middle.

Any time we have the responsibility for something, be it an entire organization, a department, or a distinct project or initiative, we are in the condition of Top. We are a Bottom any time we feel frustration at the larger system and at dealing with problems we wish those above us would resolve. We are a Middle any time we have conflicting demands and expectations placed upon us by others. In this way, every employee cycles through all three conditions.

For Oshry, recognition of the fact we move between conditions and acknowledgment of the feelings we have and the behaviors we observe in ourselves when filling these conditions is an important contributor to a healthy system. The time we spend outside of our primary condition gives us insight into the feelings, mindsets, and behaviors of the individuals in our organization for whom those conditions are an everyday experience. Through this exposure we can develop

empathy for our colleagues and a deeper understanding of their challenges. And because of this we are less likely to assume, less likely to judge, and more likely to build productive relationships.

In each condition we have the power to help the system cope, change, and become more effective. In each condition we have not only the ability but the responsibility to contribute. It is everyone's responsibility to determine how to be most effective in each condition by not falling into the reflex responses (Burden, Oppression, or Tearing) mentioned above. Though spending time in another condition can be uncomfortable, it is also a learning and growth opportunity and should be approached as such.

How We Can Be Effective

Oshry provides guidance on how we can avoid the Dance of Blind Reflex and ensure our actions are productive and helpful to the system and the people living with us in it.

In the presence of Top Burden, we should not assume all responsibility. We should empower others by creating opportunities for them to learn, feel connected, and contribute to the success of the organization. A library leader can do this by sharing information in a timely manner, involving others in the decision-making process (through the creation of ad hoc committees, for example), soliciting feedback, and creating a compelling vision for the library (or department or project team). We should also use our position as a Top to minimize the differences between Tops, Bottoms, and Middles.

In the presence of Bottom Oppression, we should not surrender all responsibility for the success of the organization to others. Individuals experiencing this situation should take responsibility for the duties of their position and the success of the organization. Even as a Bottom, there is an opportunity to contribute to the health of the organization. We should share information and observations, avoid wasting energy directing blame at others, recognize that we too have the power to make things right, and be persistent and strategic in ourr efforts.

In the presence of Middle Tearing, we should not allow the opinions and needs of others to push our own into the background. We should instead maintain our independence of thought and share what we see with others. A library middle manager needs to be an observer and a conduit of information for others. By doing this we empower ourselves and strengthen the organization. Acting as a reality check for both Tops and Bottoms, facilitating conversations across the organization, and building relationships with other Middles (According to Oshry, Middles don't typically band together like Tops and Bottoms do) are key contributions we can make as Middles.

Takeaways for Libraries

Oshry's writings can be readily applied within the academic library and can help library employees build and maintain a healthy organization. By learning and implementing his ideas we can create a more positive workplace environment for all library staff and a more inclusive organization, both of which can ultimately lead to better service to our users. Here are some key takeaways for academic libraries:

Understand your primary condition – each of us has a primary role to play within our library and understanding the expectations of our position and the challenges we will face while in it can help us be successful. This understanding is important because it will guide our actions as well as alerting us to the expectations others have of us.

Understand the conditions of others – understanding the conditions in which others operate will help us empathize with the challenges they experience and appreciate the expectations they have of us and their colleagues. Through this understanding we can better support them and help them be successful.

Realize our condition will change as circumstances change – we move between all three conditions depending on the situation and we need to adjust our behaviors and expectations accordingly. We need to be aware that the behaviors and beliefs appropriate to one condition may not be effective in another. Finding ways to use our skills in these different conditions is key to contributing successfully.

We are all responsible for the success of the organization – the success of any organization is not the sole responsibility of the Tops. Bottoms and Middles make equally important contributions to success. The myth of the all-powerful leader absolves Bottoms and Middles of responsibility for the success of the organization and creates an unhealthy system. We need to remember whenever we are in the library we are expected to be contributors, communicators, analysts, and bringers of change.

Communicate freely – an organization thrives when information flows in all directions. In the absence of information, silos flourish and opportunities are missed. Wherever you are in the organization you should share information with those around you to let them know what is happening in your part of the library.

Involve others – no employee is a sole operator, someone who can complete work out of the range of others. Library employees are united by common goals and interlinked with one another through organizational processes. Our every decision and every interaction impacts others. We must cooperate, support, and help one another.

Think holistically, not locally – productive relationships between individuals and the parts (i.e. departments, work groups, sub-units) of an organization are the key to organizational health. Every part of the library must integrate with every other part for real success to be achieved. For systems thinkers, it's always less about the individual parts of a system and more about the relationships between these parts.

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