Systems Thinking in Organizations:

Applying It to Study Arts and Educational Settings

Yuha Jung*,

University of Kentucky

Suggested Citation

Jung, Y. (2017). Systems thinking in organizations: Applying it to study arts and educational settings. The Journal of Art for Life. 9(1).

Abstract

This article discusses the origin and development of systems thinking used in organizational and communication theories in understanding organizational systems. While application of systems thinking in arts administration and education is a recent trend, the article explores how this theory is used to understand and study arts and educational organizations. Based on this theory, arts and educational organizations are understood as open, complex systems that are social ecosystems themselves but are interconnected to external environments. These open systems need to keep evolving and learning as organizations in relation to changes and needs of the stakeholders, therefore becoming learning organizations. Likewise, this theory can be applied to research methodologies to study arts and educational organizations, as demonstrated by a museum research example. This ecological research approach based on systems thinking emphasizes the open, complex qualities of research foci and multiple perspectives of the involved participants of the study.

* Correspondence regarding this article should be directed to Yuha Jung at yuha.jung@uky.edu

Though systems theory originates from the field of biological science, it has been applied to many fields of study due to its general connection with all types of systems, both tangible and intangible. While its application has been wide in business and public administration (Ackoff et al., 2010; Daft, 2013; Gharajedaghi, 2011; Seddon, 2008; Senge 2006), this theory is new to many arts administrators and educators. Perhaps, it would be more helpful to think of it as a worldview or a paradigm (Von Bertalanffy, 1972), rather than a theory that is confined to a single field. What lies in the heart of this theory is a well-known concept from Aristotle that "the whole is more than the sum of its parts" (Von Bertalanffy, 1972, p. 407). In this view the system is defined as an entity that is composed of many interconnected parts but the system itself is much more than the sum of its parts.

Therefore, systems cannot be sufficiently understood as compartmentalized parts as assumed in the classical science tradition of reductionism (Von Bertalanffy, 1972).

Therefore, systems cannot be sufficiently understood as compartmentalized parts as assumed in the classical science tradition of reductionism (Von Bertalanffy, 1972). "Reductionism generates knowledge and understanding of phenomena by breaking them down into constituent parts and then studying these simple elements in terms of cause and effect" (Flood, 2010, p. 269). Rather, systems thinking questions the illusion that the world is composed of separate and unrelated forces and re-envisions it as a web of interconnected social ecosystems existing in networks of relationships (Capra, 1996; Senge 2006). In this view, individuals, societies, and living organisms are understood as being situated in a context, constantly interacting with other parts of the world (Bateson, 2000).

The overarching objective of this paper is to introduce systems thinking to the field of arts administration and education where its application is somewhat limited although more attention has been given to it in recent years (e.g., a panel of scholars presented their research in systems thinking at the National Association of Art Education in 2015 and this article was written for a special issue of the *Journal of Art for Life* on systems thinking theory). More specifically, the article explores how this theory can be used to understand and study arts and educational organizations, which are systems themselves. In exploring what systems thinking is and how it is applied to arts and educational organizations and research, I will discuss 1) the origin of the theory, 2) the development of organic systems thinking in organizational and communication theories in contrast to mechanical thinking,

3) application of the theory for arts and educational organizations, and lastly 4) how this theory of systems thinking can be applied as a research approach in studying arts and educational settings. Throughout the paper, I will use the terms systems thinking, systems theory, and organic or ecological systems thinking interchangeably. I use the terms "organic" or "ecological" to emphasize the open, flexible, evolving, and interconnected qualities of systemic organizations. By applying systems thinking to understanding and studying arts and educational organizations, one can understand them as organizations or systems within the larger social ecosystem. This goes beyond the more traditional or conventional ways of looking at them as separate from the rest of the community or just studying one aspect, such as student performance, curriculum, leadership, or visitor engagement.

Theoretical Discussion of Systems Thinking

This section discusses the origin and theoretical development of systems thinking. By doing so I further explain the theory and clarify and define the difference and relationship between mechanical and organic systems thinking using the organizational and communication theories used in business and public administration, where the bulk of systems thinking research has occurred. While both mechanical and organic systems thinking can be applied to organizational models and structures of arts and educational organizations, organic systems thinking is more apt for understanding them as they are particularly relationship-focused, which will be further explained below.

The Origin of Systems Thinking

"The notion of system is as old as European philosophy" and it is found in everything and anything from "a living organism, a social group, or even an atom" (Von Bertalanffy, 1972, p. 407-408). The system is "a set of elements standing in interrelation among themselves and with the environment" (Von Bertalanffy, 1972, p. 417). Von Bertalanffy (1972) envisioned this organic and relational systems thinking as the system theory of the organism in 1928. He wrote, "Since the fundamental character of the living thing is its organization, the customary investigation of the single parts and processes...cannot provide a complete explanation of the vital phenomena" (Von Bertalanffy, 1933, p. 64). This idea became the seed of the term *general systems thinking* that Von Bertalanffy later coined to understand systems in general in a more organic and holistic manner.

Since the formation of general systems thinking, more scholars applied this holistic understanding to society and organizations. For example, Fritjof Capra (1996) envisioned living systems and things in the world as interconnected through a web of phenomena, individuals, social systems, and natural ecosystems. Closely related to this view, Senge (2006)

posits that organizations are complex open systems, emphasizing the interconnected reality among organizations and their internal and external systems and subsystems, which are all part of a larger social ecosystem. Therefore, each organization has to be understood as a whole, and relationships among different parts and people within it define the identity and culture of the organization. This open, ecological systems thinking does not picture organizations as something controllable and can be subject to subscribed organizational culture, structure, and systems. In other words, there is no one-size-fits-all approach that can help an organization to be an active and effective organization. Rather, there are many ways for organizations to succeed and these will be individually unique, contingent to each organization's situation.

Mechanical Systems Thinking in Organizations

The ecological and organic systems thinking is contrasted to the reductionist or mechanical thinking that breaks down the system into small parts and focuses on them individually. This mechanistic or reductionist thinking influenced many management and communication models and theories that "resolve and reduce complex phenomena into elementary parts and processes" (Von Bertalanffy, 1972, p. 409). Frederick Winslow Taylor (1911) argued that organizational efficiency and maximum profit come from highly divided workforces specializing in one specific task; workers are told what to do based on predetermined scientific plans by their managers. In the same vein, Max Weber's (1964) bureaucratic or hierarchical organizational approach suggests that communication is a managerial tool to command and control workers. These scientific approaches to organizational communication did not consider how interpersonal and informal communication affects the overall performance of organizations. In mechanical management theories, communication is somewhat unidirectional and linear as most decisions are made at the top and delivered to subordinate workers.

The dominant management theories in the mid-twentieth century in arts and educational management were taken from the scientific and mechanical approaches and did not pay sufficient attention to people and relationships among the elements of organizations (Moore, 1994). The influence of mechanical management and communication theories is still felt in today's arts and educational organizations as the departments are divided by its functions and subjects are divided and taught separately as if unrelated. Museums and other arts organizations have generally adopted a hierarchical business system with a lone director in charge of major decision-making (Janes, 2009) not inclusive of diverse perspectives of other staff members who may have more intimate knowledge of the arts and cultural work and about their communities. Schools still follow the factory model (Leland & Kasten, 2002, p. 8) as they organize students solely by their age and educate them in separate facilities

(Robinson, 2010). While the scientific approach is still influential in the field of managerial and organization theories, it is criticized for treating workers and students as parts of machines and for dehumanizing work and learning places (Moore, 1994). The mechanical theories view people merely as parts of a larger organizational machine, breaking them down into small parts, and focusing on individual's productivity and control, assuming that reductionism will lead to the sum of productivity for the entire organization. This mechanical thinking neglects the importance of the interrelationships among all parts and departments, the influence of the external environments, and the impact of all of these together in the overall success of the organization.

It also acknowledges that each organization is unique because organizations are composed of groups of people who co-create their own organizational culture in unpredictable ways and is necessarily part of, and interconnected to, other systems and subsystems (Senge, 2006).

Ecological Systems Thinking in Organizations

In an ecological systems thinking approach to organizations, there is less emphasis on hierarchical structure. Rather organizations are seen as networks or systems connected to many subsystems and other larger social ecosystems (Capra, 1996; Senge, 2006). It also acknowledges that each organization is unique because organizations are composed of groups of people who co-create their own organizational culture in unpredictable ways and is necessarily part of, and interconnected to, other systems and subsystems (Senge, 2006). Likewise, arts organizations and schools rely heavily on the experience and knowledge of highly skilled professionals and educators. How these professionals interact with each other and engage with all sections and stakeholders of the community can determine the success of their practices (Moore, 1994). In order to be most effective for these relationship-based establishments, organizational approaches must incorporate an understanding of the interconnectedness of relationships and the culture of internal and external environments.

While in mechanical systems thinking, the management and communication systems are feedback circuits, in organic systems thinking they are believed to be dynamic systems of

interactions (Von Bertalanffy, 1972). The systems approach recognizes that people are emotional, irrational, and have various qualities which make communication more complicated than scientific organizational theorists have previously theorized (Roethlisberger, 1968). The systems thinking based communication approach also acknowledges that human rationality is bound by known information and does not function as a part of the rational machine (Simon, 1997). In organic management theories, communication is not a tool for commanding or controlling but for coordinating plans, increasing morale, expanding creative human resources, and building relationships with other entities (Handy, 1993; Peters & Waterman, 1982; Senge, 2006). In this regard, effective communication is absolutely essential to organizations because the information that each person has can be shared, maximized, and synergized by many people who are involved with decision-making processes through active communication and dialogue (Simon, 1997). A systems thinking based approach emphasizes the creation of democratic and participatory working environments that foster horizontal communication systems and networks among all involved members and external actors (McGregor, 1960).

Arts and Educational Organizations as Open Learning Systems

While I argue that all organizations should be seen as an open complex systems, arts and educational organizations are specifically suited to this paradigm as they are uniquely built on relationships. For example, arts organizations, which tend to be nonprofits, rely on voluntary support and funding from many different entities and groups of people, such as individual donors, various community groups, government agencies, and private foundations. Likewise, schools are built on relationships among the governmental entities, policies, teachers, students, parents, community, and more. Providing essential services, raising sufficient funding, attracting new audiences, and being valuable components of the community become extremely difficult without continuously developing relationships built on trust with diverse entities and people. An ecological systems thinking approach emphasizes these complex relationships among human beings within organizations and in relation to external organizations and larger environments, and therefore it is more apt for arts and educational organizations than the scientific management approach based on reductionist thinking (Moore, 1994).

To provide an example, in my previous studies (Jung, 2011; 2014a), I approached museums with this organic viewpoint. I saw museums as open, flexible, and growing entities that are closely connected with the surrounding environments, including the culture, economy, demographics, and politics of the communities that they serve. Based on this ecological

perspective, I conceptualized museums as social ecosystems as if they were living organisms (Jung, 2011). In this conceptualization, organizations are open and active systems and they should avoid being in the state of equilibrium—i.e., stagnant and unchanging. When living organisms reach equilibrium, they become diseased or die (Von Bertalanffy, 1950). Organizations have to keep changing in order to achieve *dynamic equilibrium* (Von Bertalanffy, 1950), which in an effective organization is being responsive to changes happening, often unexpectedly, both internally and externally to the organization. When living organisms are at dynamic equilibrium, they are constantly responding to external stimuli and adapting internally to the changes of their environment in order to survive and thrive.

A good example of an organization that is striving to achieve dynamic equilibrium is Fleisher Art Memorial, a nonprofit visual arts school located in Philadelphia, PA. This organization wanted to attract more diverse groups of students from African American, Southeast Asian, and Latino communities and did community market research through focus groups and surveys (Parker, 2012). What it found out was that the school was perceived as an unwelcoming place among people of color. The organization's attitude had to shift in order to change the perception of the school in the community and be seen as a welcoming and diverse place for all (Parker, 2012). The organization started to pay attention to what the community wanted rather than what the organization thought was important to the community. It sought to change the culture within the organization by citing market research results in routine meetings and doing mandatory training sessions focusing on language accommodations and cultural sensitivity. It was the communicative and learning process of the organization that made a difference (Parker, 2012). One of the initiatives that came about as a result of this learning process was to bring programing to the community through a mobile studio for families in parks and other public places in an effort to change the perception of the institution (Parker, 2012).

In this case, communication—flexible, informal, multi-directional, and ongoing—is understood as a complicated *learning network* that helps the organization flourish and should be integrated into the organizational system, rather than being treated as a controlling tool (Senge, 2006). Through team-based dialogue, all members of an organization can find diverse, creative ways to solve problems and make decisions that not only matter internally but also are relevant to external stakeholders and the larger environment. Dialogue allows a free flow of information among people in multiple directions in a form of network (Bohm, 1996; Senge, 2006). Based on team-based dialogue and network-based organizational systems, arts and educational organizations can be learning organizations (Senge, 2006), an effective and efficient way to stay relevant or reach the state of dynamic equilibrium by

constantly learning and growing to meet the needs and interests of the stakeholders and external environments. The alternative is to remain stagnant, or even disappear, and become irrelevant to the needs of the changing community.

Ecological Research Approach

Organic systems thinking in organizational and communication theories can also be applied to studying organizations when seen as a world view or a paradigm. The topics researchers in arts administration and education study are part of the social ecosystem that is in a form of complex network. Doing research is not a linear process and when researchers apply a systems approach to methodology it forces them to consider many connections and perspectives that could be overlooked when applying reductionist approaches. Systems thinking is "a way of seeing things which were previously overlooked or bypassed, and in this sense is a methodological maxim" (Von Bertalanffy, 1972, p. 424). The systems approach to methodology acknowledges that there are many ways to understand certain relationships. I am not suggesting a subscribed way of studying and researching but more a mental model for research based on holistic understanding, i.e., looking at the forest as well as the interrelationships among individual trees. The ecological research approach is seeing research foci as complex and open systems and emphasizing the researcher's role as a dynamic learner and facilitator of dialogue in order to present multiple perspectives.

Doing research is not a linear process and when researchers apply a systems approach to methodology it forces them to consider many connections and perspectives that could be overlooked when applying reductionist approaches.

Research Foci as Complex and Open Systems

A systems thinking based methodology can provide a more holistic picture of the topic under study because it is conducted within the context of surrounding environments. It includes the researcher as an active part of the research setting, facilitating dynamic dialogue among different perspectives of the things and participants. "In studying organizations, if one focuses simply on its organizational structure, or merely on its mission statement, or only on its employees or managers, one loses the interconnections and interrelationships that characterize that system or subsystem" (Werhane, 2002, p. 35). An ecological research approach urges researchers to critically examine research foci in their entirety and include their external environments that are affecting the settings under study.

When researchers approach their research foci as part of a social ecosystem, they can envision them as located in a complex data web. The ecosystem of empirical materials or data is conceptualized as thoroughly entangled pathways (Ingold, 2007) that are made of "an invisible open cultural, social, and political system that affects and is affected by infinite decisions and interactions happening in the system" (Jung, 2014b, p. 5). For example, Jan Nespor (1997) studied schools as social places located within a unique context of external settings (Nespor, 1997). He explores not only children's interactions and learning at school but also carefully considers their surroundings, including the economic, cultural, and political relations that shape their learning experiences (Nespor, 1997). His approach to the subject is holistic because he studies children's educational experiences through many layers of context, surroundings, and perspectives.

In my longitudinal museum study, an art museum was my primary focus of research. Rather than studying the museum separate from the community or looking at one department at a time, I focused on understanding the museum as part of the community and studied interrelationships among people and departments within the museum system (Jung, 2012). The museum is an ecosystem itself and is interrelated to its community physically and through the invisible web of various cultural, economic, social, and political connections. For example, within the museum, each department is composed of relationships between people and one department's actions affect other departments' work. The staff at the development office raise funding for educational programming and exhibitions at the museum influencing the work of education and curatorial departments. Not being able to raise funding for an outreach program, for instance, can potentially end the program. In addition, when a development officer does not understand the museum's programming, she has a difficult time convincing a potential donor to contribute to that specific cause. The museum programming is often based on the exhibitions on display, emphasizing interconnection between the education and curatorial departments. When there is no

collaboration between these two departments, one can imagine the programs becoming less cohesive in relation to the exhibitions and vice versa. Therefore, the unique organizational culture, characteristics, and practices of the museum cannot be understood when one only looks at one single unit, such as the work of curatorial or educational department.

In the museum's interrelationship to the community, the city government was financially related to the museum as it gives a subsidy to the museum that covers one third of the museum's overall operating fund. In turn, the museum economically generates income for the city by bringing in regional tourists who patronize local hotels and restaurants, with part of that revenue coming to the city government as sales tax. People from the community visit the museum and pay admission, and local schools use the museum as an educational resource. In addition, museum staff visit nearby schools for outreach programs. Furthermore, other nonprofit, public, and private organizations within the community that the museum constantly interacts with are also systems themselves that are trying to maintain their state of dynamic equilibrium which affects the museum's work. Overall cultural, economic, demographic, and political characteristics and concerns affect and limit the types of programs and exhibitions the museum provides to the public. These are a few examples of the interconnections between the individuals, parts, and systems within the museum and community. Additionally, over time things change therefore changing the internal and external environment of the museum. Returning to the same museum four years later to continue this study helped me understand how the relationship between the museum and its community evolves over time and how changes happen in relation to things within and outside the museum social ecosystem.

Overall cultural, economic, demographic, and political characteristics and concerns affect and limit the types of programs and exhibitions the museum provides to the public.

The Researcher as a Learner in Exploring Multiple Perspectives

"Each system or subsystem, because it is complex and entails a multitude of various individual, empirical, social, and political relationships, needs to be analyzed from multiple perspectives" (Werhane, 2002, p. 36). The researcher's role becomes important in the process of exploring multiple perspectives; she can act as a learner of different perspectives and dialogue facilitator in bringing out further insights rather than as a person who controls the research setting. In other words, the researcher can use informal and dialogical communication style to talk to her research participants, learn from them, explore their views, and physically visit various spaces and places in order to examine as many perspectives as possible. While I am not suggesting that there ever can be a complete story of a phenomena, certainly not a single objective story, including many perspectives can provide a more balanced view of culture and characteristics of a research focus.

For my aforementioned museum study, I tried to locate myself in various settings of the museum practice by making myself comfortable in the museum and making my participants feel I was part of the museum, although as an external researcher, I was not one of them. I interviewed and interacted with as many people as possible, including museum staff, visitors, volunteers, board members, local leaders, politicians, educators, and non-visitors to thoroughly understand the museum from multiple perspectives and in relation to other organizations (e.g., schools, other arts and cultural organizations, private businesses, and city hall). I also participated in a variety of meetings, events, and initiatives both in the museum and community in order to explore more perspectives and meet more people. The process of socializing with people through casual conversations and maintaining an open attitude to learn new perspectives led me to more participants and expanded my insights.

As a result of my role as a learner and facilitator of dialogue with diverse people, for example, I ended up interviewing the mayor of the city, the director and staff members of the local chamber of the commerce, the director of the tourist bureau, and superintendent of the school system to understand how the museum was interrelated to the city politically, economically, and educationally. While I am still working on this museum study (the first set of data was collected in 2011, and I did a follow-up study in 2015), I provide an example below of how understanding diverse perspectives can draw a balanced view of the museum. When I asked the existing visitors and donors about their satisfaction level with the museum's programs and exhibitions, most of them were relatively happy with what the museum provided and thought that the museum did a good job attracting community members to its building and services. However, some of the non-visitors that I spoke to did

not know what the museum offered and some did not think the museum was in any way relevant to them. Some thought the museum was only for rich White people and they did not feel they belong there. In discussing the funding structure of the museum, while the director of the museum might say the city funding is necessary as the museum provides important educational opportunities for people in the city, the mayor of the city might say that since it is mostly used by rich suburban families who do not reside in the city, the tax money should not go to the museum. As shown in these examples, a researcher may not provide a neat picture of a situation or may not always support which perspective is more legitimate than others. However, she can contribute to a balanced view of a research focus by providing multiple perspectives and therefore, telling a more compelling and critical story. I strived to learn the system, adopt new approaches to data collection, and explore new perspectives. This learning mindset forced me to think "more broadly, and to look at particular systems or problems from different points of view" (Werhane, 2002, p. 37), making what is invisible in the entangled data web more visible and accessible to others.

Conclusion

These open systems need to keep evolving and learning as organizations in relation to changes and needs of the stakeholders, therefore becoming learning organizations and maintaining the state of dynamic equilibrium or staying relevant to its internal and external changes.

I opened this article with the discussion of the general systems thinking, which is the origin of the ecological systems thinking and further explained the development of organic systems thinking in contrast to mechanical or reductionist thinking using organizational and communication theories perspectives. By looking at arts and educational organizations as systems, I established how organic systems thinking developed in other fields is applied to arts and educational organizations that are uniquely relationship-focused and network-based. Based on this discussion, arts and educational organizations are understood as open and complex systems that are social ecosystems and are interconnected to external environments. These open systems need to keep evolving and learning as organizations in relation to changes and needs of the stakeholders, therefore becoming learning organizations and maintaining the state of dynamic

equilibrium or staying relevant to its internal and external changes. The ecological systems thinking approach was further conceptualized as a foundation for research methodology in studying arts and educational organizations by using a longitudinal museum research as an example. An ecological research approach frees researchers from focusing on just one thing, classroom, department, museum, or individual, and leads them to look at how what they study is of a system and also part of a larger social ecosystem. This approach helps researchers look at their research foci deeply and in a broad manner considering multiple perspectives. It also emphasizes the important role of researcher as a learner in exploring multiple perspectives in interpreting her research foci and the surroundings.

References

Ackoff, R. L., Addison, H. J., & Carey, A. (2010). *Systems thinking for curious managers: With 40 new management F-laws.* Devon, United Kingdom: Triarchy Press.

Jung, Y. (2011). The art museum ecosystem: A new alternative model. *Museum Management and Curatorship, 26*(4), 321-338.

Jung, Y. (2012). Building strong bridges between the museum and its community: An ethnographic understanding of the culture and systems of one community's art museum (Unpublished doctoral dissertation). Pennsylvania State University, University Park.

Jung, Y. (2014a). Building strong bridges between the museum and its community: An ethnographic understanding of the culture and systems of one community's art museum. *The International Journal of the Inclusive Museum, 6*(3), 1-11.

Jung, Y. (2014b). Mindful walking: The serendipitous journey of community-based ethnography. *Qualitative Inquiry, 20*(5), 621-627.

Bateson, G. (2000). *Steps to an ecology of mind*. Chicago, IL: University of Chicago Press.

Capra, F. (1996). *The web of life: A new scientific understanding of living systems*. New York, NY: Anchor Books.

Daft, R. L. (2013). *Organization theory & design.* Mason, OH: South-Western.

Flood, R. L. (2010). The relationship of 'systems thinking' to action research. *Systemic Practice and Action Research, 23*(4), 269-284.

Gharajedaghi, J. (2011). *Systems thinking: Managing chaos and complexity: A platform for designing business architecture.* Burlington, MA: Morgan Kaufmann.

Handy, C. (1993). *Understanding organizations: How understanding the ways organizations actually work can be used to manage them better.* New York, NY: Oxford University Press.

Ingold, T. (2007). *Lines: A brief history*. London, United Kingdom: Routledge.

Janes, R. R. (2009). *Museums in a troubled world: Renewal, irrelevance or collapse?* Abingdon, United Kingdom and New York, NY: Routledge.

Leland, C. H., & Kasten, W. C. (2002). Literacy education for the 21st century: It's time to close the factory. *Reading & Writing Quarterly, 18*(1), 5-15.

McGregor, D. (1960). *The human side of enterprise.* New York, NY: McGraw-Hill.

Moore, K. (1994). Introduction: Museum management. In K. Moore (Ed.), *Museum management* (pp. 1–14). London, United Kingdom: Routledge.

Nespor, J. (1997). *Tangled up in school: Politics, space, bodies, and signs in the educational process.* Mahwah, NJ: Laurence Erlbaum Associates, Inc.

Parker, S. (2012). *Building arts organizations that build audiences.* Wallace Foundation. Retrieved from http://www.wallacefoundation.org/knowledge-center/Documents/Building-Arts-Organizations-That-Build-Audiences.pdf

Peters, T. J., & Waterman, R. H. (1982). *In search of excellence: Lessons from American's best-run companies.* New York, NY: Warner Books.

Robinson, K. (2010). Ken Robinson: Changing educational paradigms. Video.

Roethlisberger, F. J. (1968). *Man-in-organization: Essays of F. J. Roethlisberger*. Cambridge, MA: Harvard University Press.

Seddon, J. (2008). *Systems thinking in the public sector: The failure of the reform regime and a manifesto for a better way.* Axminster, United Kingdom: Triarchy Press.

Senge, P. M. (2006). *The fifth discipline: The art and practice of the learning organization.* New York, NY: Doubleday.

Simon, H. A. (1997). *Administrative behavior: A study of decision-making processes in administrative organizations.* New York, NY: The Free Press.

Taylor, F. W. (1911). *The principle of scientific management*. Mineola, NY: Dover Publications.

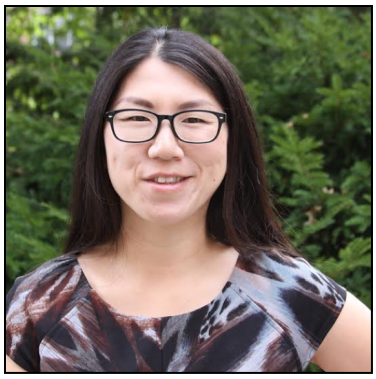
Von Bertalanffy, L. (1933). *Modern theories of development: An introduction to theoretical biology*. Oxford, United Kingdom: Oxford University Press.

Von Bertalanffy, L. (1950). The theory of open systems in Physics and Biology. *Science, 111*, 23-29.

Von Bertalanffy, L. (1972). The history and status of general systems theory. *The Academy of Management Journal, 15*(4), 23-29.

Weber, M. (1964). *The theory of social and economic organization.* New York, NY: The Free Press.

Werhane, P. H. (2002). Moral imagination and systems thinking. *Journal of Business Ethics, 38*(1/2), 33-42.



About the Author

Yuha Jung, PhD, is an assistant professor of arts administration at the University of Kentucky. She holds an MA in museum studies from Syracuse University, MPA from the University of Georgia, and PhD in art education from the Pennsylvania State University with an emphasis on museum education and management. Her current research interests center around the incorporation of systems theory and organizational studies in arts and museum management and education. She has published numerous papers in the areas of culture diversity, engaging diverse audiences, systems theory, organizational culture, and informal learning in arts and cultural institutions.