

Systems thinking for excellence and equity: introduction to the special issue

Present day schools are expected to demonstrate both excellence and equity. In the present era of measurement in education, the staff in each school is held directly accountable for ameliorating its students' academic progress and outcomes. Educational policies worldwide require school systems to prove a continuous rise in student achievement levels, particularly in a small number of curricular domains deemed crucial for 21st century success, such as language, science and mathematics. At the same time, school systems are required to enable all students to succeed, regardless of ethnicity, class, gender, physical ability or disability, sexual orientation and other potentially marginalizing characteristics. Social justice concepts should be realized in schools so that they provide equal opportunities for all students and treat them equally, without discrimination or favoritism of any kind.

Yet, these widely voiced expectations have only been partially realized in schools. Despite the substantial contributions of researchers, policymakers and educators to aggressive campaign efforts which aimed to turn schools into arenas of scholastic success and social justice, the daily reality in schools has not changed sufficiently in the past decades. Considering this gap between widespread implementation of evidence-based, long-standing, multifaceted initiatives to improve teaching and learning for all students in our school systems and the somewhat disappointing school reality, a major question arises: Why has only limited progress been made, and why has it been relatively short lived?

This question does not seem to have a simple answer. The reasons for the gap between expectations and their realization are many and varied. We believe that among other things, one of the inhibitors of education systems' progress is linear thinking, epitomized in [Charlie Chaplin's film *Modern Times* \(1936\)](#) in which modern life is compared to a factory assembly line. In the linear thinking approach, a process is considered to begin from a specific point, follow a series of connected steps and end at another specific point ([Groves *et al.*, 2008](#)). Anything that occurs during the process is the effect of an earlier cause. Thus, if we want to explain a phenomenon, we must first find its cause. Both input and output are predictable, and are efficiently and orderly presented, considered and studied ([Azzara, 2010](#)). The human mind seems to favor linear thinking. We have been educated to regard a straight line between two points as the most effective way to get from one place to another. Unfortunately, however, linear thinking, as manifested in production-function change initiatives, rarely succeeds in nonlinear contexts ([Bratianu and Vasilache, 2010](#)).

In contrast to linear thinking, systems thinking suggests a circular approach ([Senge, 2006](#)). According to systems thinking, the many variables within any system are causally related in feedback loops, consisting of the system's outputs that are rerouted back into it as inputs, generating a circuit of causation. The feedback loops interact themselves; these interactions constitute the system's structure and determine its behavior ([Ford, 2009](#)). This notion of feedback loops challenges the simplistic reductionist perception of the relationship between cause and effect, in which the first event is considered responsible for the second. From the feedback-loops perspective, understanding the system as a whole is necessary, since the first event influences the second, but the second event also influences the first, leading to a circular series of interactions ([Åström and Murray, 2008](#)). Thus, causation in systems is not wholly obvious and tends not to be direct ([Pryor, 2008](#)).

Moreover, systems thinking advocates adopting a multidimensional view. Each and every element within a system inevitably has a context that influences it; therefore, there is always more than one reason, explanation, implication or answer related to that element or



component of interest. Systems thinking is characterized by expansion in multiple directions rather than in one direction only. It is based on the notion that there are multiple starting points from which one can begin to apply logic to a problem, encouraging us to take various aspects and dimensions into consideration simultaneously (Gharajedaghi, 2011). In organizations, systems thinking is a mindset for individuals within the organization, and simultaneously, it is also realized within the organization as a whole.

Systems thinking is required in school leadership because a school is not a complicated system but rather, a complex one (Mitchell and Tarter, 2011). The connections among the elements of a complicated system, such as an airplane, are linear. We can investigate a complicated system, and even predict its behavior, by adding up the characteristics of its components and their connections. In a complex system, on the other hand, the links among the elements are reciprocal and interdependent. The properties and behavior of a complex system are a function of its parts, as well as of their interdependent relationships, involving varying types and strengths of interconnections and intricate patterns of positive and negative feedback loops. A change in any one of the elements will reverberate throughout the whole complex system, and therefore its behavior is generally nonlinear and much less predictable. Moreover, unlike many complicated systems that can reach equilibrium and stasis, complex systems are often in perpetual movement and, hence, are in a continuous state of “becoming,” and their behavior is continuously emerging. Thus, a complex system cannot be reduced to its components and must be studied as a whole (Kaplan and Garner, 2017).

School systems are inherently complex organizations, involving a vast multiplicity of interacting activities, people and purposes (Senge *et al.*, 2012). As a nonlinear real-world reality, a school often runs up against substantial conflicts; its mode of operation can be pursued through myriad courses of action, each with particular strengths and weaknesses and its different stakeholders may hold diverse or even incompatible desires, views, expectations and demands (Ewy, 2009; Wells and Keane, 2008). Hence, a multidimensional systemic approach, which encompasses various domains simultaneously, may enable us to juggle several notions at once regarding explanations for school performance. This stems from the belief that no single reason exists for anything that occurs in a school, and no single explication represents the sole truth (Shaked and Schechter, 2017). Systems thinking challenges us by claiming that connections within school systems are not effortlessly recognizable; they are indirect, circular and hidden, requiring deep contemplation to uncover them. At the same time, systems thinking provides us with hope, as through it we understand that in order to change the whole school system, we do not have to carry out multiple independent initiatives simultaneously; rather, we have to carry out a few key coordinated initiatives to improve the entire system through networks of interaction.

Although systems thinking as nonlinear thinking is considered to hold great promise for leaders, organizations and systems of all kinds (Brown, 2012; Jolly, 2015; Wilson and Van Haperen, 2015), its application in the field of educational administration and policy is meager (Shaked and Schechter, 2017; Shaked *et al.*, 2018). Narrowing this gap in the available knowledge was the motivation for this special issue, which focuses on systems thinking in educational leadership. Insofar as embracing a systemic framework requires policymakers, administrators and educators to espouse not only a new frame of reference but also a distinct language that would be sensitive to the multiple dynamic relationships, interactions and mutual influences within the system, this special issue seeks to explore the language of systems thinking in educational leadership.

We were fortunate to gather leading scholars representing a variety of research trends and approaches to examine systems thinking in educational leadership at the school principal level, the school building level, the district level and the national level. At the school principal level, *David DeMatthews* focused on two principals who created effective inclusive schools. He identified leadership practices needed to design inclusive reforms, including practices

associated with systems thinking, as well as themes related to how school leaders recognized, understood and met inclusion challenges and change processes. *Pascale Benoliel, Haim Shaked, Nehama Nadav* and *Chen Schechter* inquired into the relationship between principals' systems thinking and demographic variables. Their findings illustrated the significance of gender similarity in the relationships between principals and middle leaders, and showed that the study of principals' systems thinking requires examination of group-level effects. At the school building level, *Sharon D. Kruse* explored how systems thinking underlies the school's organizational structures. For her, seeing leadership as less of an asset of individuals and more of a variable in an effective organizational practice might be a better way to understand school leadership. *David Gurr, Fiona Longmuir* and *Christopher Reed* utilized a systems thinking view of school leadership to examine the multiple contexts surrounding both leaders and schools. They suggested that individual leadership factors, including career histories, personalities and values merged with school and community factors to bring about improvement in schools. At the district level, *Lars Norqvist* and *Helene Arlestig* examined how leaders within a school district system understand their and others' leadership responsibilities through the prisms of systems thinking and systems thinking skills. They found that while leaders within the school organization communicate regularly among themselves, a broader systems thinking perspective was underdeveloped. *Yi-Hwa Liou* and *Alan J. Daly* analyzed an entire county system, which included over 300 organizations supporting the Science, Technology, Education and Mathematics (STEM) pipeline for education and careers, from a social network perspective. They pointed to a huge web of connections that hardly considered schools and districts as major players in the ecosystem. At the national level, *Adam Nir* assessed the extent to which educational policy programs produced by the Ministry of Education reflect systems thinking. A content analysis revealed that the contribution of the centralized structures to the consistency and coordination of policy plans was limited.

All too often, simplistic solutions for complex situations are proposed to educational leaders. As so many leaders have unfortunately discovered, these panaceas rarely work, because they are not sufficiently holistic. By focusing on the parts rather than on the whole, and assuming that there is a one size fits all solution, educational leaders fail to grasp the opportunity to properly consider the complex interactions that occur among various parts of the system. This current special issue that proposes a systems thinking approach encompassing both theory and practice for educational leadership, joins other important recent attempts to help contemporary educational leaders deal with the ever-increasing complexity of their role.

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