Chapter 11

Early Childhood Systems for Birth Through Age 8: Conceptual Challenges and Research Needs

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In recent decades, many in the early childhood field have embraced systems approaches as a means to increase alignment, coherence, and continuity among and across programs and services. Systems hold promise to achieve more uniform high quality, increased access, reduced duplication, and improved effectiveness across disparate government agencies' efforts, as well as between and across public and private organizations. Although used frequently in the field, the term *system* often lacks conceptual clarity and analytic precision. This chapter addresses both, outlining key issues to inform research related to early childhood systems over the next decades.

At the outset, I distinguish among different "system" foci to anchor my perspective. The field of early childhood has deep roots in Uri Bronfenbrenner's *ecological systems theory*, which guides the understanding that children develop in a context of multiple relational environments, which include family, community, and society. A second use of "system" recognizes the nestedness of *organizational system* contexts and calls for the alignment of local, state, and federal agendas and policies in order to sustain practices that benefit young children (Cobb, Jackson, Henrick, Smith, & MIST Team, 2018; Stipek, Clements, Coburn, Franke, & Farran, 2017). For example, these systems reforms reflect the understanding that student learning is dependent on teacher learning, but teachers' opportunities to learn are dependent on school and district structures, which, in turn, are influenced by state and federal policies and priorities. A third use of the term "system," in *system thinking*, highlights the need for stakeholders to have the cognitive ability to understand interconnections and, importantly, the willingness to reflect on the difference between what they aspire to and what they actually produce (Stroh, 2015). This strand recognizes that stakeholders must possess specific ways of thinking that motivate them to change the way they work and with whom they work. Finally, a fourth use of "system" focuses on the necessity of a shared *system infrastructure* that supports programs (Kagan & Cohen, 1997). The elements of early childhood system infrastructure have been defined differently over time (Bruner, Stover Wright, Gebhard, & Hibbard, 2004; Cohen & Bhatt, 2012; Fixsen, Blase, Metz, & Van Dyke, 2013; Kagan & Cohen, 1997; Kagan & Kauerz, 2012) and include governance, finance, standards, quality improvement supports, workforce development, and accountability. In this

chapter, I unite these four foci, paying attention to relational and organizational contexts, as well as cognitive and structural aspects of systems-building approaches.

Further complexifying systems work in early childhood, there are two predominant system movements. Early care and education (ECE), or birth-to-five (0–5), systems-building approaches strive to bring greater coherence to the typically siloed programs that serve children prior to kindergarten, including child care; Head Start and Early Head Start; state-funded pre-K; special education services (Part C and Part B, Section 619); and more informal settings (Kagan & Kauerz, 2012). Preschool through third grade (P–3), or birth-through-eight (0–8), systems-building approaches strive to bring greater alignment across the array of ECE programs and K–12 public education (Bogard & Takanishi, 2005; Kauerz, 2006). These two systems-building movements (0–5 and 0–8) have distinct histories but share similar challenges. While a comprehensive review is beyond the scope of this chapter, I focus on systems-building approaches that address the intersection of ECE and K–12 systems.

First, I address three bodies of knowledge that are essential to understanding the importance of systems in early childhood. Next, I pose three persistent conceptual challenges that permeate early childhood systems building. To close, I propose some promising directions for future research that could provoke influential insights into systems-building efforts in early childhood.

Bodies of Knowledge: What We Know

The early childhood years, birth through age 8, are critical for learning and health into adulthood. High-quality programs and interventions during these years provide short- and long-term benefits to children and to society, but some children have more opportunities to reap the benefits than do other children. Three bodies of literature document these benefits and provide evidence of the need to build early childhood systems. Research in child development and learning (neuroscience, developmental psychology, and education), economics, and sociology all contribute fundamental understandings of how young children's experiences are influenced by early childhood systems.

Child Development and Learning

A growing conceptual base of child development and learning unites neuroscience, developmental psychology, and education (National Research Council & Institute of Medicine, 2000; National Scientific Council on the Developing Child, 2007) and has fueled attention from the public and policy makers. Neuroscience highlights the rapid and voluminous brain development that occurs during the first years of life and the important influence of children's early experiences in shaping the brain's circuitry. Developmental psychology and education emphasize that children's varied early experiences have a profound influence on subsequent learning and development. Access to high-quality interventions and programs can positively influence lifelong trajectories of health and well-being for children and families (National Research Council, 2001). The provision of these services relies on a combination of individual responsibility, informal social supports, and formalized structures in

society. This body of research emphasizes the inseparable and highly interactive influences of nature and nurture, and the importance of the system of varied contexts and services that support children's learning and development.

Economics

The field of economics bolsters the importance of early childhood interventions, applying human capital theory and cost-benefit analyses to estimate the returns to society from investments in children's early experiences. Some of the best-known economic studies, those that include randomized control trials and longitudinal follow-up, include HighScope/Perry Preschool (Heckman, Moon, Pinto, Savelyev, & Yavitz, 2010), the Carolina Abecedarian Study (Barnett & Masse, 2007), and Chicago Child-Parent Centers (Reynolds, Temple, White, Ou, & Robertson, 2011). The HighScope/Perry Preschool project was a small-scale study that involved fewer than 60 children who experienced that intensive program as 3- and 4-year-olds. Both Abecedarian and Chicago Child-Parent Centers incorporated multiple types of intervention (e.g., high-quality preschool instruction plus intensive family support and/or health care services), providing them to children over an extended number of years. Economists estimate that the total benefit-cost ratios of these intensive interventions range from between 2.5 and 10.8 dollars for every dollar invested (Barnett & Nores, 2018).

Using these data, states, cities, and communities across the country have promoted and implemented large-scale early education programs. The program impacts have been mixed and predominantly much smaller than those described above. Scholars and practitioners alike concede that one reasonable explanation is that large-scale programs do not deliver services that are as intensive in quality or dosage as the smaller-scale, highly controlled studies (U.S. Department of Health and Human Services & Administration for Children and Families, 2010; Yoshikawa et al., 2013). The takeaway here is that the quality and mix of services provided to children has a strong influence on the magnitude of program impacts. As such, economic studies provide a critical foundation to systems research, documenting program designs that can produce long-lasting impacts, while also foregrounding questions related to the infrastructure needed to sustain and scale highly effective programs.

Sociology

The field of sociology elevates concerns about equity in early childhood programs and services, highlighting disparities in both opportunities and outcomes that exist for young children whose life course is threatened by socioeconomic disadvantage, family disruptions, and/or diagnosed disabilities (Duncan & Murnane, 2011). Achievement gaps exist by the time children enter kindergarten and do not change substantively between kindergarten and fourth grade (Reardon & Portilla, 2016). Children who grow up in families and communities with multiple risk factors often experience services delivered by federal, state, and local governments, independent nonprofit organizations, neighborhood associations, partnerships, and other administrative entities. The policies and practices of these institutions are highly fragmented, with complex points of entry that are especially problematic for underserved children and families (National Research Council & Institute of Medicine, 2000). The recognition that substantive disparities and inequities exist for subpopulations

of children, and that a confusing web of programs and organizations mediates children's experiences, provides further grounding for the importance of systems-focused efforts.

Conceptual Issues That Lack Agreement

Despite the contributions of these fundamental bodies of knowledge, there are still major gaps in understanding early childhood systems, some of which I address in this section. Systems exist in numerous disciplines, in both physical and social sciences. Common to all of these is the understanding that systems span organizations, and boundaries define what organizations are responsible for doing and what powers and functions lie elsewhere. The field of public administration has focused on five elements—which in the field are often referred to as "boundaries"—and the conflicts that arise around them when organizations strive to work together as a system: mission, resources, capacity, responsibility, and accountability (Kettl, 2006). Considering the array of programs, organizations, and government agencies across ECE and K–12, these boundaries are relevant to early childhood systems building. Working effectively at and across the boundaries requires new strategies of collaboration, the contours of which are shaped by formal agreements (e.g., laws, rules/regulations, resources, funding structures) and by individual stakeholders (e.g., with values, perspectives, ideological presuppositions, actions) who influence organizations and the relationships between them. Put simply, systems building requires attention to both administrative and social capacities (Thomson & Perry, 2006), and to both structural/technical and adaptive change (Heifetz & Linsky, 2002).

In this section, I explore three conceptual issues related to boundaries in early childhood systems building: (a) How do traditionally distinct systems (i.e., ECE and K–12) negotiate and adopt a shared paradigm for young children's development and learning? (b) How do agencies and organizations overcome structural siloes and collaborate across sectors? And (c) How does the field support and encourage coherence and alignment without sacrificing a diverse delivery system that promotes the central role of families and communities in young children's lives?

Adopting a Shared Paradigm

How do traditionally distinct systems negotiate and adopt a shared paradigm for young children's development and learning?

If ECE and K–12 are to become more aligned and coherent, the two fields need to identify a common frame for children's learning and development. Yet the contrast between the underlying paradigms of ECE and K–12 is stark. The dichotomy has been characterized in various ways, including, but not limited to, the teaching of children versus the teaching of content, play versus rigor, private versus public, individualized versus standardized, targeted versus universal, home-based versus institutional. These perspectives reflect distinctly divergent assumptions about the purposes of services in ECE and K–12, about who is served, what is provided, how it is provided, and who is responsible for funding and governing those services.

The emergence and development of ECE programs in the United States has followed the general trajectory of social services, providing support to children whose families lack resources and/or children most at risk for poor developmental outcomes (Cahan, 1989; Kagan, Cohen, & Neuman, 1996). Inherent to most ECE programs is a dedication to developmentally appropriate practice, child-centered learning, and a core value of including and supporting children's families. ECE programs emphasize the uniqueness of each child and focus on teaching the whole child, ensuring that social, emotional, physical, and cognitive development are addressed.

In contrast, the development of the U.S. K–12 education system evolved from the Common School Movement of the early 19th century, in which public schools were viewed as a means to unify society by conveying norms for surviving in the new industrial culture (Kliebard, 1995). The late 19th century witnessed the professionalization of teachers, while accountability and standardized learning were emphasized in the 20th century (Spring, 2001). These values have been consistently reinforced by legal standards for "highly qualified teachers" and formalized methods of assessing student performance. The K–12 system focuses on teaching explicit academic skills and knowledge, delineated into specific content areas (e.g., literacy/reading, math, science, social studies). Content learning is evaluated with formal, summative assessments that measure mastery and are administered in controlled environments.

These paradigmatic contrasts have led many to question the desirability and feasibility of creating a shared paradigm. The challenges are rooted in deep, complex issues of individual cognition and social capacity. The creation of a shared paradigm requires more than recognizing and understanding a "new" perspective; it requires individuals to adapt not only their thinking, politics, and practices (Colaner, 2016) but also, and perhaps more importantly, their underlying values and worldview (Kuhn, 1996). The ability of ECE and K–12 to embrace shared values and speak with a common voice about children's learning and development is a critical ingredient for systems building. Theorists, policy makers, and practitioners alike need to grapple with how these different paradigms might unite or morph into a shared understanding about young children's learning and development.

Establishing Cross-Sector Governance

How do agencies and organizations overcome structural siloes and establish coherent governance approaches?

A shared paradigm is not a philosophical question only. An early childhood system requires coherent governance approaches. Yet paradigmatic differences in ECE and K–12 systems are reflected in the policy realm, where programs and services are organized and governed in separate siloes. The structures of ECE and K–12 are linked to different governing bodies and procedures, financing mechanisms, rules, regulations, and accountability structures. Coherent governance is further complicated by the fact that both ECE and K–12 are loosely coupled systems in and of themselves, meaning their internal elements share few and weak variables (Weick, 1976). For example, the ECE system—due to the many programs within it (e.g., Head Start, child care, state-funded pre-K, Special Education), each with its

own different policy infrastructure—has been termed a "non-system" (Kagan & Kauerz, 2009). Similarly, the K–12 system is highly decentralized, with nearly 14,000 independently governed local school districts across the country, leading some to call it incoherent and virtually ungovernable (Cohen & Bhatt, 2012). Federal, state, and local governments play varying roles in ECE and K–12. Some programs are governed at the federal level (e.g., Head Start), and others at the local level (e.g., K–12 school districts). State governments provide primary leadership in some programs (e.g., state-funded pre-K and child care) and marginal, if any, leadership in others (e.g., Head Start). The fragmentation within ECE and K–12 further complicates governance *across* the two systems.

Structural and regulatory differences can affect access, quality, and equity (Ansari et al., 2017; Bassok, Greenberg, Fitzpatrick, & Loeb, 2016; Jenkins, Farkas, Duncan, Burchinal, & Vandell, 2016; Pianta, 2010; Whitebook, 2014). For example, different facilities standards may prohibit school districts from providing space for pre-school programs. State regulations for pre-K may require a specific square footage per child or a particular distance to access toilets. Elementary schools may have available space and the desire to house a pre-K classroom, but cannot adhere to the specific pre-K licensing requirements.

While there is growing attention to governance within ECE systems-building (Kagan & Gomez, 2015; Kagan & Kauerz, 2009), stakeholders who strive to create comprehensive approaches that span ECE and K–12 face considerable challenges. Given the fragmentation of ECE, the field lacks agreement on which parts of the ECE system need to become more tightly coupled with which parts of the K–12 system. Each vision demands a different governance solution. For example, some argue that 4-year-olds should become part of the K–12 system, and that the "new American primary school" should serve pre-K through fifth grade (Takanishi, 2016). However, if pre-K for 4-year-olds becomes an explicit part of the K–12 system, then it may become more disconnected from other programs within the ECE system, such as child care, Head Start, and infant/toddler services. From a policy and governance perspective, the coupling of pre-K with K–12 would engender universal access, formula-based funding, and increased professionalization of teachers. However, this decoupling within the ECE system belies what is known about the continuum of young children's learning and development (Markowitz, Bassok, & Hamre, 2018) and may lead to unwanted standardization of childhood experiences (Fuller, 2007). Greater alignment in one place creates misalignment in another place. To realize early childhood systems, cross-sector governance strategies will need to negotiate these either/or conundrums.

Navigating Alignment Without Sacrificing Differentiation

How is coherence built without sacrificing essential differentiation that matters to diverse children and families?

Another issue related to early childhood systems building is the paradox of isomorphism, in which actors make their organizations more and more similar (e.g., homogeneous in structure, culture, and output) without necessarily making them more efficient (DiMaggio & Powell, 1983). In early childhood systems, the tension arises between the competing areas of "education" and "care." Isomorphism may sometimes be desirable. For example, when

different programs have different pay scales for the same work (Whitebook, 2014), making compensation for child care teachers more equitable in comparison to public school teachers is a preferred outcome. Similarly, as we learn more about the program variables that produce better outcomes for young children, it is sensible for more programs to adopt those policies and practices; Quality Rating and Improvement Systems (QRIS) are built on this premise of desired isomorphism (Schaack, Tarrant, Boller, & Tout, 2012). But isomorphism can also be undesirable. Some have argued that ECE's efforts to align with the standards movement in K–12, through the creation of early learning standards and increased attention to child assessments that measure school readiness, has led to an inappropriate push-down of academics into kindergarten and pre-K programs (Bassok, Latham, & Rorem, 2016; Brown, Englehardt, Barry, & Ku, 2019), leading to the "educationalization" of early childhood (Kagan & Kauerz, 2007) and an unwanted isomorphism with the accountability culture of K–12 (Hatch, 2002).

Recent research posits the possibility of creating a hybrid logic that weds together care and education, in effect neutralizing any competition that one must prevail over the other (Colaner, 2016). The challenges of doing so are profound, as the relationship between isomorphism and power is an intimate one. Organizations that have more clout—socially, financially, politically—are most often those that prevail (Peters, 2001). Examples of this are abundant in early childhood. Across the world, most countries that have integrated ECE with public education have done so within the education system (Moss, 2018) rather than within a more care-focused system. In the United States, some argue that the school readiness movement emphasizes the needs of the politically powerful K–12 system over the fundamental rights of children (Bloch & Kim, 2015).

Isomorphism is further problematized because organizations can become more homogenized without simultaneously becoming more equitable. Within ECE, critical scholars question the isomorphic tendencies of Developmentally Appropriate Practice, highlighting how it defines differences in ways that sustain the centrality and superiority of Whiteness (Souto-Manning & Rabadi-Raol, 2018). Aligning ECE with a K–12 system that does little to address the diverse needs of children (Paris, 2012) or to ameliorate educational disadvantage (Brighouse & Schouten, 2011) poses serious concerns. The structural tidiness and isomorphism of "alignment and coherence" may have profound implications for which children are well served by the system and which are not. These issues demand greater deliberation.

Promising Directions for Future Research

Beyond the robust research agendas in neuroscience, developmental psychology, economics, and sociology, early childhood systems research can expand to include additional disciplinary foundations and methodological explorations. I propose increased attention to organizational and human cognition theories and related disciplines and methods. To this end, I introduce four overarching research questions that, explored empirically through organizational and cognitive perspectives, could contribute to the field's understanding and implementation of systems approaches.

Research Question 1: How do individual stakeholders make sense of and become compelled to engage meaningfully in systems change?

Systems-building is not merely a philosophical endeavor. It relies on individual stakeholders to imagine, design, engage with, and support changing the status quo. More work is needed to understand the cognitive and motivational factors that prompt practitioners and policy makers to view systems building as a worthwhile endeavor. Individual stakeholders can either frustrate or generate greater momentum for abandoning usual ways of thinking/doing and embracing fundamentally new, systems-focused approaches.

More work is needed to understand the motivational inputs that are needed for practitioners, policy makers, and other stakeholders to view systems building as a worthwhile endeavor. The field of human cognition explores how individuals make sense of change and how their prior knowledge, beliefs, and experiences influence their willingness to construct new understandings of their work (Spillane, Reiser, & Reimer, 2002). Research on leadership has distinguished between technical and adaptive challenges inherent in change (Heifetz & Linsky, 2002). *Technical challenges* are those with known solutions and accessible resources and procedures to address. *Adaptive challenges*, in contrast, lack clear solutions and require changed attitudes, values, and behaviors. Of particular relevance to the adaptive challenge of systems building, stakeholders often cannot see that the new result (an aligned system) will be any better than their current situation. Literature describes people's inherent unwillingness and limited capacity to change, especially when new activities and expectations appear inconsistent with pre-existing interests and agendas; new information is almost always interpreted in light of what is already understood (Spillane et al., 2002). Simply, change is hard for people, and current practice has built-in conservatism and inertia (Fullan, 2011). When considering competing paradigms, the challenge of shifting individuals' thinking and beliefs related to early childhood systems building is apparent. For example, the assumption that K–12 stakeholders need only to be told that young children learn best through play and that schools will then reframe the structure and interactions of elementary school classrooms is simplistic and ignores the complexity of human sense-making required for systems change.

Cognitive sense-making is largely unexplored in the literature on early childhood systems. Early childhood scholars should invest more effort to unpack and understand the social and psychological factors that inspire and support individuals to seek new alliances, to become "boundary spanners," and to manage and build interorganizational relationships and interdependency (Thomson & Perry, 2006). To fill this gap, scholars can use case study and grounded theory research. By interviewing system leaders at both practice and policy levels, scholars can discern beliefs, attitudes, skills, values, emotions, and other intrapersonal characteristics that propel and inhibit system-focused work. Research in this area could be incorporated into preservice, in-service, and leadership development programs within and across ECE and K–12.

Research Question 2: Under what conditions does shared, meaningful systems-building change occur?

Closely entwined with the intrapersonal variables just described, exogenous *inter*personal conditions influence system change. Cognitive change is shared and distributed among individuals in an interactive network (Spillane et al., 2002), and such networks operate in

the context of professions, organizations, membership entities, and other thought communities. Systems building requires collective decision making where stakeholders engage in deliberative processes for designing and implementing policies and procedures that impact public and private entities, and straddle both ECE and K–12 agencies. A further gap is in understanding of the influence of collaborative processes—timing, sequence, and scope of engagement—on early childhood systems building.

Collaborative processes across ECE and K–12 need deeper qualitative and quantitative investigation. Research should be concerned with specific mechanisms by which meaningful changes to collaborative relationships, processes, and outcomes are accomplished, and should focus on understanding the differential influence of various contexts. To accomplish this, researchers anchored in cognitive sense-making theories and sociocultural and network studies can investigate the processes through which individuals learn from one another and the ways that networked interactions surface new perspectives related to shared paradigms and aligned effort. Emerging research examines how practices that include stakeholders during the early stages of collaboration affect outcomes such as higher levels of program success (Johnston, Hicks, Nan, & Auer, 2010). Similarly, other scholars have learned how specific communication structures fostered relationships that enabled positive change dynamics (Douglass, 2016).

Case study research could contribute to theory building about early childhood systems and provide analytical substance to tracing the temporal sequences of events and relationships that occur in various systems-building contexts. Investigating the efficacy of communities of practice, networked improvement communities, and other collaborative processes that intentionally bring together stakeholders from ECE and K–12 would contribute greatly to understanding early childhood systems building. Two quantitative methodologies that hold promise are *social network analysis*, in which communication and influence can be mapped and studied (Carolan, 2014), and *multiagent modeling*, which uses computational simulation to test simple social interaction theories generated from case studies (Epstein & Axtell, 1996).

Research Question 3: What institutional and organizational arrangements produce effective collaboration and coherence across and among ECE and K–12 programs?

A third area of inquiry for early childhood systems building centers on how disparate programs and services are organized, across ECE and K–12, to meet shared goals. Increasingly, collective decision making occurs inside new governance structures (Kagan & Gomez, 2015), shared backbone organizations in collective impact initiatives (Kania & Kramer, 2011; Kauerz, 2013), and other cross-sector entities (Geiser, Horwitz, & Gerstein, 2013; Regenstein & Lipper, 2013). What is not known is which structural arrangements engender the most perceived legitimacy and trust from partners, reflect shared paradigms and desirable isomorphism, and, as a consequence, lead to meaningful and positive systems change.

Some researchers are developing typologies and classifications for different forms of collaborative early childhood governance (Kagan & Gomez, 2015; Kauerz & Kagan, 2012; Selden, Sowa, & Sandfort, 2006) and identify a continuum of system efforts—from weaker

networks to more stabilized/centralized agencies. Additional research is needed to theorize the taxonomy. For example, it would be fruitful to examine the nature of different cross-sector and interdependent structures to deepen understanding of the different functional approaches to accomplishing their missions. To date, most empirical research examining alignment between ECE and K–12 has been focused on understanding classroom practices (see, for example, Carr, Mokrova, Vernon-Feagans, & Burchinal, 2019; Franko, Zhang, & Hesbol, 2018; Stipek et al., 2017) and school/site-level implementation (Reynolds et al., 2017). Case studies document efforts to improve pre-K-to-third-grade school culture (Ritchie & Gutmann, 2014) and district-level implementation (Bardige, Baker, & Mardell, 2018; Marietta, 2010). The federal government recently funded the Early Learning Network, which will begin to produce additional research on alignment efforts around the country (see, for example, McCormick, Hsueh, Weiland, & Bangser, 2017).

However, more research is needed to investigate the organizational infrastructure and, importantly, the *cross*-organizational infrastructure needed to take these efforts to scale and to sustain them over time. Researchers can look to schools of thought such as *new institutionalism*, which focuses on ways in which action is structured and order made possible by shared systems of rules (Powell & DiMaggio, 1991), and *collaborative governance*, which emphasizes carefully structured arrangements that interweave public and private capabilities around shared goals (Donahue & Zeckhauser, 2011). These literatures focus on organization-level factors (e.g., dependence of one organization on another, centralization of resource supply) and field-level factors (e.g., degree of interactions/transactions among organizations) that may be influential in better understanding which structural arrangements are effective in achieving which goals related to early childhood systems.

Research Question 4: What are the relevant outputs and outcomes of early childhood systems-building efforts? How can they be measured?

A fourth area for research aims to deepen and broaden the definitions and metrics used to understand the outcomes of system work. Beyond single program evaluations and effects on child outcomes, how can the field discern what is an efficiently and equitably functioning system? While some scholars have proffered thinking about how to evaluate early childhood systems (Coffman, 2012; Coffman & Kauerz, 2012; Kagan, Gomez, & Roth, 2018), more conceptual and methodological work is needed. As outlined at the beginning of this chapter, systems work has multiple facets that include relational, organizational, cognitive, and structural dimensions. Each of these dimensions is important, and researchers and practitioners, as a first step, should consider how to define and measure their desired outcomes. For example, when considering nested organizations across local, state, and national contexts, is it "systems success" for there to be increased alignment at only the school/local level, with fragmentation still existing at the state and federal policy levels?

For the structural dimension, metrics might include the adequacy and sustainability of resources or the reduction of duplicative services and administrative functions. For the relational dimension, metrics might include stability of networks of organizations and programs, or the accomplishment of shared goals. For the cognitive dimension, metrics might include the prevalence of shared norms of trust or the breadth of routines and

structures for collaboration among stakeholders. But how these variables can be reliably measured is a question ripe for deeper investigation.

While evaluations of systems must include outcomes such as those just outlined, they cannot entirely ignore child outcomes. I argue that the ultimate purpose in systems building is to improve the learning and development opportunities provided to children so that gaps close, inequities are addressed, and all children thrive and succeed. Ensuring that the development of new structures, bureaucracies, and processes produces meaningful change at the child level needs to be prioritized. These challenges are exemplified by current questions about whether the past decade's extraordinary investments in Quality Rating and Improvement Systems (QRIS) are producing the magnitude of change in program quality required to positively and significantly influence child outcomes (Goffin & Barnett, 2015; Tarrant & Huerta, 2015).

Because experimental designs (or other counterfactuals) are likely not possible, new methods for measuring system efficacy are needed. These investigations will need to integrate the principles of implementation science, wherein the fundamental questions are less about "Did it work?" and more about "What works, for whom, and under what circumstances?"

Inherent to these questions of evaluation and outcomes, systems building introduces new challenges of accountability. Because cross-sector coordination is complex and responsibility inevitably is shared—across organizations and levels of government, as well as across the public, private, and nonprofit sectors—accountability can be difficult to determine. As early childhood systems become more complex, with various governance structures, subsystems, and collaborative arrangements, ensuring that there is accountability for creating not just symbolic progress, but also significant change, is of utmost importance.

Conclusion

Systems work permeates the early childhood field. Systems theories, systems thinking, and systems building are commonly used by policy makers and practitioners alike. The focus on systems in early childhood is predicated on their potential to significantly increase both the scope and the scale of evidence-based supports provided to children and their families. However, many questions remain unanswered about early childhood systems, in particular those that serve to bridge ECE and K–12.

Conceptually, thorny issues related to what to align, how much can be aligned, and the desirability of such alignment, loom large. Alignment is not simply a technical challenge but also an adaptive one, which requires changing values, paradigms, and notions of accountability. Practically, new research approaches and methodologies will help researchers to discern the motivations of individual stakeholders to be systems builders, the processes that support productive collaboration, the structures that engender meaningful functions of governance, and the outcomes for which systems should be responsible. Addressing these issues provides rich opportunity for multidisciplinary, and *inter*disciplinary, scholars to expand their theoretical and empirical research to investigate early childhood systems.

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