COLLECTIVE IMPACT PARTNERSHIPS: THE DATA-TO-ACTION HOURGLASS MODEL

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Abstract

Models are needed to guide positive health care and social transformation using real-world data, particularly in an era of data-driven science and accountability. We describe the Data-to-Action Hourglass Model, which synthesizes ideas of collective impact, partnership theory and practice, knowledge complexity, design justice, and systems thinking toward this goal. The Hourglass Model is an ecological (nested) perspective, placing knowledge management within the context of health at levels ranging from planetary to personal, and then using knowledge to inform collective action to influence policy. We offer in-depth commentary and resources to guide use of the Hourglass Model in research, education, and practice, and invite collaboration and discourse related to the model.

Key words: Equity; Partnership; Collaboration; Leadership; Safety; Quality

INTRODUCTION

There is a nascent paradigm shift in health care from traditional hierarchical, market approaches to alternative, relational models that encompass perspectives of family relations, gender relations, economic relations, and the language and narrative of partnership (Eisler, 2017; Eisler & Potter, 2014). Models are needed to guide this

transformation, particularly in an era of data-driven science and accountability in health care (Cruz, 2021). The purpose of this article is to present the Data-to-Action Hourglass Model to support this transformation of health-care systems and practices. The Hourglass Model builds on the concepts of collective impact (Kania et al., 2014; Kania & Kramer, 2011), partnership theory and practice (Eisler, 2017; Eisler & Potter, 2014), knowledge complexity (Allee, 1997; 2003), design justice (https://designjustice.org), and systems thinking (Cabrera et al., 2015) to foster innovation and social engagement toward policy change. Principles of enactment are provided to guide inquiry and action based on the model, in service of collective impact partnerships. We expect this will positively influence projects and programs to support data-based learning and the development of innovations that address social determinants of health. Our long-term goal is to leverage data through collective impact to shift the narrative of health to one of community-engaged partnerships.

COLLECTIVE IMPACT AND PARTNERISM

Collective impact is the commitment of a group of actors from different sectors to a common agenda for solving a specific social problem, using a structured form of collaboration (Kania & Kramer, 2011). Successful collective impact initiatives typically have five conditions that together produce true alignment and lead to powerful results: a common agenda, shared measurement systems, mutually reinforcing activities, continuous communication, and supportive organizational structures (Kania & Kramer, 2011). A shift to a partnership mindset and model of operation involves attention to family and childhood relations, gender relations, economic relations, and the language and narrative of partnership, and the intersectionality of these factors (Eisler, 2017; Eisler & Potter, 2014). Design justice principles add to the above the need for partnerships to foreground historical and local knowledge and voices, actively seeking corrective change toward non-exploitive solutions.

Successful collective impact depends on these cornerstones of partnerism, as well as the following principles. Collective impact is about building partnerships and cultures

that foster relationships, trust, and respect (Christens & Inzeo, 2015; Kania & Kramer, 2011). Collective impact requires that all participants have a shared vision for change, one that includes a collective understanding of the problem and a joint approach to solving it through agreed-upon actions. Achieving collective understanding is itself an accomplishment requiring the invitation of disparate perspectives, using humility in listening and examining the data, introspection for one's places of resistance, and willingness to bring shared perspectives to understanding the problem. A key to collective impact partnerships is the development of trust among communities, nonprofits, corporations, and government agencies. Collective impact partnerships involve recruiting and co-creating with cross-sector partners to use data to continuously learn, adapt, and improve. Thus, collective impact efforts require attention to partnership theory and practice (Eisler, 2017; Eisler & Potter, 2014). Increasingly, collective impact also depends on having good data sources that include the voices of those who are directly impacted and historically under-represented, to support effective and sustainable action. Therefore, collective impact partnership also requires attention to knowledge complexity, power dynamics, and data-based learning.

KNOWLEDGE COMPLEXITY

In today's data rich world, the notion that data leads to information, information leads to knowledge, and knowledge evolves into wisdom has been put forth by numerous authors (Rowley, 2007). Verna Allee (1997; 2003) suggests there is more to the process, and has proposed an archetype that makes explicit the complexity of knowledge. Table 1 illustrates the levels and categories of what Allee (1997; 2003) defines as the Knowledge Complexity Archetype. At each level one can identify questions related to collective impact partnership projects. In addition to Allee's important insights about knowledge complexity, we propose updates to her model incorporating diversity/equity/inclusion perspectives and design justice principles to better accomplish sustainable change and empowerment across historic lines of exclusion.

Table 1

Levels and Categories of the Knowledge Complexity Archetype

	Knowledge and Learning Mode	Action and Performance Focus	Time Perspective	Data Focus
DATA	Sensing. The data mode of learning is at the sensory or input level. Little actual learning takes place (Single loop learning).	Gathering information. Receiving input, registering data without reflection	Immediate moment	What is the best available data about this particular social determinant of health regarding the population of concern?
INFORMATION	Action without reflection. Procedural learning entails redirecting a course of action to follow a predetermined course. Learning is mostly trial and error (single Loop learning).	Doing something the most efficient way. Conforming to standards or making simple adjustments and modifications. Focus is on developing and following procedures (efficiency).	Short (present – now)	Given the best available data how does this inform the development of action?
KNOWLEDGE	Self-conscious reflection. A large perspective that involves evaluation and modification of the goal or objective, as well as design of the path or procedures used to get there. Learning requires self-conscious reflection (double Loop learning).	Doing it the best way. Evaluating and choosing between two or more alternative paths. Goals are effective action and resolution of inconsistencies. Focus is on effective work design and engineering aspects such as process redesign (effectiveness)	Short (immediate past and present)	To what degree are actions and procedures effective given the data, and information regarding the social determinant of health and population of concern?

MEANING	Understanding context, relationships & trends. Learning requires the making of meaning, which includes understanding context, seeing trends, and generating alternatives. From this perspective it is possible to detect relationships between components as well as comprehending roles and relationships between people (communal learning).	Understanding what promotes or impedes effectiveness. Effective management and allocation of resources and tasks, using conceptual frameworks to analyze and tack multiple variables. Encompasses planning and measuring results. Also attends to working roles, relationships, and culture (managing/ productivity)	Medium to long (historic past, present, near future)	To what degree are actors and partners in the system supporting the learning and understanding of the issues, relationships and emerging trends related to the social determinants of health regarding the population of concern?
PHILOSOPHY	Self-organizing. Integrative or systemic learning seeks to understand dynamic relationships and non-linear processes, discerning the patterns that connect, including archetypes and metaphors. Requires recognition of the embeddedness and interdependence of systems (duetero learning).	Seeing where an activity fits the whole picture. Understanding and managing socio-cultural system dynamics. Focus is on long-term planning and the ability to adapt to a changing environment. Comprises long-range forecasting, development of multi-level strategies, and evaluating investments and policies with regard to long-term success (optimization)	Long-term (past, present, and future)	How does the data and knowledge gained contribute to systemic understanding of values and beliefs to support integration and interdependence of insight and understanding to develop a philosophy to support self-organizing?
WISDOM	Value driven. Learning for the joy of learning, in open interaction with the environment. It involves creative processes, heuristic, open-ended explorations, and profound self-questioning. Allows for the discovering of one's highest capabilities and talents, purpose, and intentions (generative learning).	Finding or reconnecting with one's purpose. Defining or reconnecting with values, vision, and mission. Understanding purpose. Very long-term time frame leads to deep awareness of ecology, community, and ethical action (integrity)	Very long-term (very distant past to far distant future)	To what degree does optimization influence and reinforce purpose driven learning given the identified social determinant of health and the population of concern? What is the wisdom gained from optimization and consideration of sustainability?

UNION	Connection. Learning integrates direct experience and appreciation of oneness or deep connection with the greater cosmos. Requires processes that connect purpose to the health and well-being of the larger community and the environment (synergistic learning).	Understanding values in greater context. Inter-generational time perspective evokes commitment to the greater good of society, the environment, and the planet. Performance is demonstrated in actions consistent with these deeper values (sustainability)	Inter-generational, timeless	To what degree does generative learning about the social determinants of health given this population of concern inform a sense of unity, partnership, and commitment to a greater good that includes environmental and planetary health?

Note. Adapted from *The Future of Knowledge: Increasing Prosperity Through Value Networks*, by V. Allee, 2003, Elsevier. Used with permission.

In Allee's model (1997; 2003; 2008), knowledge gained instinctively is derived from sensing and feedback during here-and-now moments. Such gathered data leads to the development of information which can be used to support learning and define the most efficient way to accomplish a goal or task. As people gain experience and reflect on the data and information they have acquired, knowledge grows and develops. We argue that at the data level, instinctual learning is no longer sufficient and may reinforce past systems and practices that have been comfortable and/or self-serving for those with greater social power. Instead, data collection needs to be intentional and self-critical, inclusive of historically marginalized voices, and emergent from shared processes of inquiry.

Through reflection, collective impact partners discern how best to focus on necessary data in order to use knowledge in the most effective ways (Allee, 2000). The meaning collective impact partners attribute to a data focus and knowledge gained supports understanding and productivity and the effective use of resources. This type of

meaning-making requires sensitivity to time and communal learning. Communal learning coupled with a sense of past, and present time perspective, lay the foundation for self-organization and the development of a philosophy of how things fit together in a system. Over time, the data, knowledge, learning, and collective impact lead to wisdom insights about ecosystems of communities and the world. Wisdom supports connections and dynamic relationships between and among people, events, resources, and social structures, and things in the greater whole. In the end, collective impact partnerships foster social engagement, innovation, and policy changes in service of sustainability efforts and social justice. At each level of the Knowledge Complexity Archetype one can pose data-relevant questions to guide inquiry and action in service of learning and collective impact efforts. Such inquiry requires attention to diverse levels of perspective and a system thinking mindset (Allee, 2008).

THE DATA-TO-ACTION HOURGLASS MODEL AND PRINCIPLES TO SUPPORT COLLECTIVE IMPACT PARTNERSHIPS

The authors and those acknowledged in this paper developed the Data-to-Action Hourglass Model to help people consider different logical levels and perspectives when using data to address the social determinants of health (Figure 1). The model served as a way to filter, frame, and focus learning to support inquiry, research, and practice.

Figure 1.

The Data-to-Action Hourglass Model
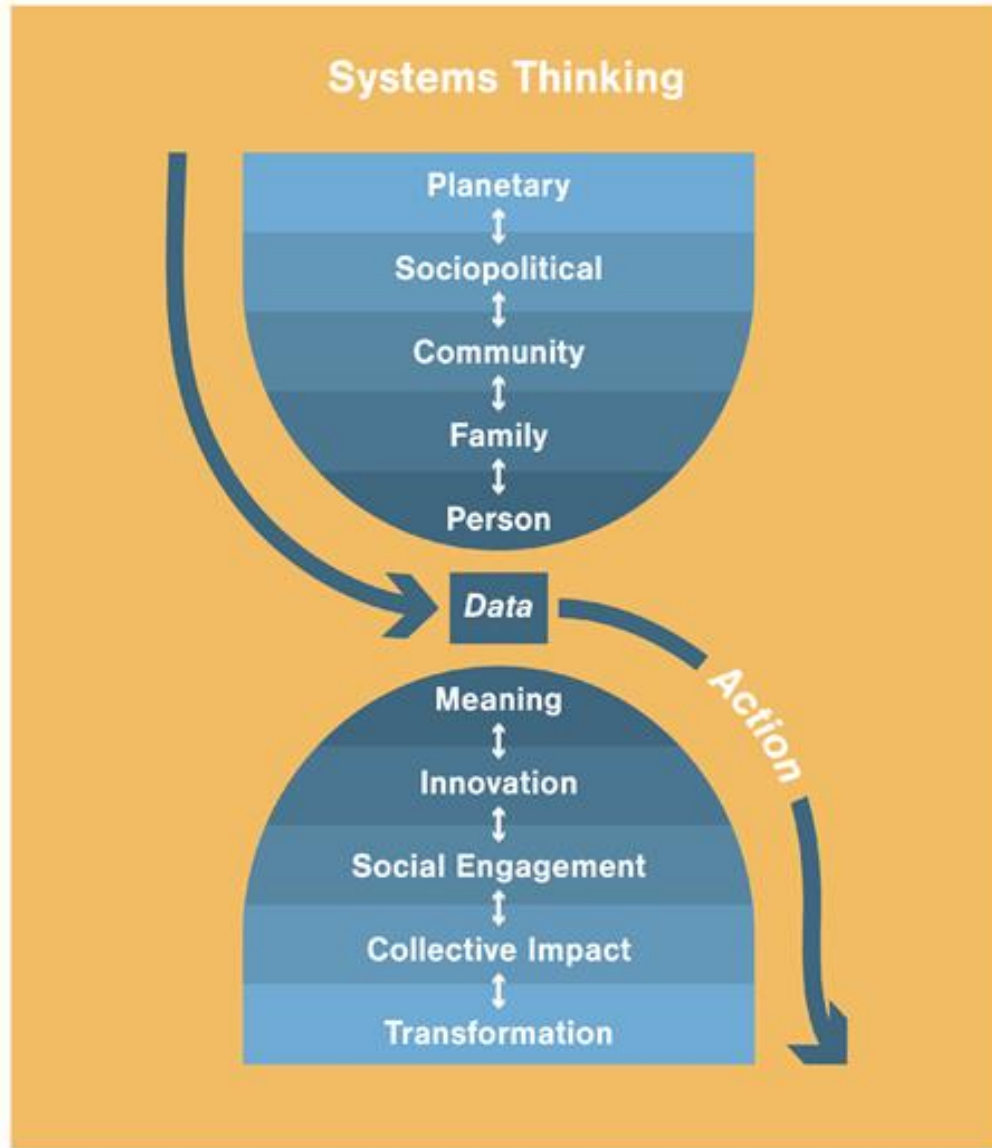
The Hourglass Model is a strategy for organizing thinking - realizing that diverse levels of abstraction and scale are needed as people engage in identifying problems and specifying desired outcomes related to social determinants of health. Consider the photographer's choice of camera lenses to capture perspectives on an object. The wide-angle lens is used to view the whole picture in the context of surrounding objects. The zoom lens narrows the image to provide a close-up, even microscopic perspective. Then zooming out, the camera once again provides an expanded view with context, and new understanding of the image in the context of the larger whole. Data on social determinants of health are relevant at each of these levels. The challenge is to integrate the data across levels and turn it into knowledge that informs change/transformation and health promotion (Nutbeam & Muscat, 2021). The principles of enactment for the Hourglass Model are as follows:

Systems Thinking

Systems thinking is essential for understanding relationships between and among all dimensions and levels of health. We see things differently depending on our perspectives. For optimal solutions to complex problems, it is important to view the problem from multiple levels/perspectives before deciding how to address them. Engaging partners who have divergent life experiences and identities can offer an expanded perspective by challenging our assumptions and biases.

Several scholars have ideas and theories that support the development of systems thinking. Peter Senge (2014) and colleague are best known for proposing five disciplines of learning organizations: Building a Shared Vision, Systems Thinking, Mental Models, Team Learning, and Personal Mastery. Cabrera et al. (2015) have proposed the Distinctions, Systems, Relationships, Perspective (DSRP) model as the essence of systems thinking. Verna Allee challenges people to think about knowledge management as a system, with attention to learning, action, and performance foci. Systems thinking describes and explains both positive and negative system archetypes. As described in the monograph *Greater Than the Sum: Systems Thinking in Tobacco Control*, systems thinking is used to inform policy and practice (National Cancer Institute, 2007).

Planetary Health

Planetary health is the ultimate determinant of health (Prescott et al., 2018), and the highest level of nested environments depicted in the Hourglass Model. Various initiatives that provide perspectives for the future regarding Planetary Health include The Planetary Health Alliance (https://www.planetaryhealthalliance.org), the World Health Organization (https://www.who.int/health-topics/social-determinants-of-health), the Millennium Project (https://www.millennium-project.org), and the United Nations Sustainable Development Goals (https://www.un.org/sustainabledevelopment). These high-level initiatives influence the levels nested within Planetary Health, including the sociopolitical and person-based systems described below. All these initiatives require attention to partnership principles and practices.

Sociopolitical and Person-Based Systems

In the sociopolitical level and among the nested levels of communities, families, and individuals, there are political, social, moral, and environmental variables influenced by policies, practices, and ethical, legal, and multicultural factors including race/ethnicity, gender, and religious beliefs. These multiple interacting system dynamics create and sustain health, as well as contributing to health risks. The Hourglass Model recognizes the critical importance of relationships (family, gender, and economic) for narrative development as defined within the partnerism cornerstones (Eisler 2017; Eisler & Potter, 2014). A community is a specific group of people, often living in a defined geographical area, who share a common culture, values, and norms, and are arranged in a social structure according to relationships which the community has developed over a period of time; a family is a unit of two or more persons united by marriage, blood, adoption, or consensual union, in general consisting of a single household, interacting and communicating with each other (Nutbeam & Muscat, 2021).

Data

Data is the focal point of the Hourglass Model, the point at which we translate the nested levels above into the action steps below. Data exists at diverse levels of scale

that include planetary, sociopolitical, and person-based systems. It is critical to address voice (having agency through data) and data equity for all stakeholders (Nagaraj et al., 2020). Levels of scale determine data focus and use and indicate the type of intervention (conversation vs. policy/legislation vs. revolution). The Hourglass Model stimulates thinking about health data at all these levels. The transformation of data into information and knowledge is a key aspect of learning, action, and performance. Knowledge management is key to meaning making and action. Data provides feedback that can be used to promote efficiency and effectiveness and measure productivity to optimize long-term success that supports the values, visions, and mission of valuable determinants of health. The pathway from data-to-action is through knowledge management (Allee, 1997; 2003) and principles of partnership (Eisler, 2017; Eisler & Potter, 2014).

Knowledge Discovery

Human and artificial intelligence transform data into meaningful information and knowledge, leading to new mental models (Allee, 1997; 2003; Rowley, 2007). As data is transformed into information, knowledge is created and provides the basis for sense and meaning making to inform philosophies that make explicit system dynamics of systems. Sensemaking supports hindsight, yields insights, and fosters foresight to inform visions that guide action. Foresight can be leveraged through social innovation processes, to realize collective partnership impact (Pesut, 2019).

Social Innovation

New mental models guide innovations. Social innovation is the process of developing and deploying effective solutions to challenging and often systemic social and environmental issues in support of social justice. Social innovation and collective impact partnership projects are informed by data that supports sense and meaning making in service of desired futures.

Social Engagement

Social engagement and engaged partnerships spread innovations, leading to collective impact and policy change. Individuals, groups, and organizations guided by vision, values, actionable data, and knowledge management practices that inform and influence sense and meaning making are more likely to realize sustainable goals that transform problems into desired health futures. As defined by the Collective Impact Forum (https://www.collectiveimpactforum.org), Collective Impact is the commitment of a group of actors from different sectors to a common agenda for solving a specific social problem, using a structured form of collaboration.

Policy Change

Policy change sustains transformation to a desired future when supported by collective impact and partnerism. Actionable data supports change, transformation, and sustainability in service to the health and welfare of all people and the planet.

EXEMPLARS OF COLLECTIVE IMPACT PARTNERSHIPS

Collective impact efforts have the potential to influence policy and health-care outcomes. Once stakeholders co-establish a vision and mission for collective impact, partnership principles and practices enable those visions to become reality. These projects would not be successful without a shift in mindset, and mental models influenced by partnerships, data, and knowledge.

Bringing Whole-person Health Data to Communities

Austin and colleagues collaborated with community stakeholders *at their request* to ensure that communities and neighborhoods had access to good data about whole-person health during the COVID-19 pandemic. Their goal was to shift the narrative in underserved neighborhoods to one of strengths, while recognizing the challenges and needs in their communities (Austin et al., in press). This project grew to include community members and organizations in new neighborhoods as well as local health department officials. Their mobile health application (app) MyStrengths+MyHealth,

based on the Omaha System (Martin, 2005) provided the data infrastructure to connect all stakeholders in this ongoing effort.

Mitigating Homelessness

The Los Angeles Home for Good Project (https://homeforgoodla.org) is a community-driven initiative to end homelessness in Los Angeles County. The collective effort seeks to ensure that homelessness is brief, rare, and non-recurring, by monitoring data, investing funds, improving systems, and empowering the public.

Mitigating Typhoid

The Typhoid and Torrents case study looked at how upstream actions related to environmental change and human behavior at numerous scales increases the risk of typhoid fever and the transmission of other waterborne diseases on the Pacific Island nation of Fiji (Duff et al., 2020). This included attention to multiple partnerships such as industrial activities associated with deforestation and cattle-farming, poor sanitation standards in riverside villages, and poor household practices around water, sanitation, and hygiene (WASH). The setting for this case study is rural communities on a small island nation in which people are particularly dependent on healthy river catchments for their water, food, and livelihoods.

SUMMARY

The purpose of this article is to present the Hourglass Model to support transformation of health-care systems and practices in partnership-informed service of health. The Hourglass Model builds on the concepts of collective impact partnership theory and practice, knowledge complexity, design justice, and systems thinking to foster innovation and social engagement toward policy change. This model serves as a starting point for discussions among partners who want to explore multiple perspectives and points of view that influence interacting components to create and sustain health. Successful collective impact projects require trusting partnership to address these forces. Partners rally around a common agenda using data at diverse levels of scale

(nations, populations, communities, families, individuals). Knowledge management principles and practice make data actionable for social innovation and collective impact partnerships and projects. Social innovation and collective impact projects and partnerships are informed by data to support sense and meaning making in service of desired futures.

Actionable data supports change, transformation, and sustainability in service to the health and welfare of all people and the planet. More than knowing the nuances of an issue, a successful collective impact partnership must build relationships with a cross-sectoral range of system players who themselves are experts and stakeholders in the issue. More than having a specific solution in mind for how to address a problem, a successful collective impact partnership must be able to thrive in a fluid, unstructured, and often entrepreneurial environment. Partnerism emphasizes the data-driven shift in narrative that will result from application of the Data-to-Action Hourglass Model.

Acknowledgments

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