



“Collective Impact” and STEM Learning: Joining Forces to Make a Difference in Communities

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ABSTRACT

Today, policy makers, funders, and government agencies alike are grappling with the need to use resources efficiently and effectively in order to make a measurable difference in addressing some of today’s pressing significant social, cultural, and educational challenges. When dealing with such complex and “wicked” problems as global warming, hunger, substance abuse, education and skills development (including competencies in STEM disciplines), it’s not enough for an organization to deliver results that contribute only to *its* bottom line. Increasingly, civic and philanthropic leaders are promoting a “collective impact” approach that moves beyond individual organizational effectiveness to foster (and even require) multi-organization collaboration to drive systemic change. This paper describes collective impact and its evolution in the policy, philanthropic, and programmatic arenas, with a focus on STEM learning.

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Introduction

There is plenty of evidence for the urgency of addressing STEM learning in this country: poor academic performance of U.S. students in the STEM disciplines in comparison with other countries, under-representation of minorities and women in STEM professions, and the fact that today's societal "grand challenges" in areas such as our physical and digital infrastructure, climate change, biodiversity, and health will require STEM knowledge and dispositions. Science and technology are at the heart of these and other pressing current policy issues; hence, public knowledge of STEM is a very real prerequisite for an informed democracy.

The STEM learning ecosystem is diverse, complex, and disjointed, yet potentially interconnected, including family, friends, mentors, and peers to institutions and settings that include school, after school, church, sports, clubs, libraries, parks, and museums. The complex, or "wicked," challenge, according to Martin Storksdieck, in *STEM Learning Is Everywhere*, is to "mesh these contributions synergistically rather than duplicatively while adapting models that have worked well in one place to the culture, governance, and idiosyncrasies in other settings." There is no "playbook" for creating such an integrated system; therefore this is indeed a challenge ripe for an approach that draws strategies and practice from collective impact and other current system-focused efforts.

The World of Impact and Outcomes

In recent years, policy makers and funders have increased calls for all organizations, including those in the nonprofit and municipal sectors, to demonstrate their impact using a variety of quantitative and qualitative metrics. In 2002, in the wake of the 1993 Government Results and Accountability Act, the Institute of Museum and Library Services published *Perspectives on Outcome Based Evaluation for Libraries and Museums* with contributions by museum scholar Stephen E. Weil and Texas state librarian Peggy D. Rudd. At the same time, the agency began to require logic models (linking programs with specific goals and outcomes) from many of its grantees, held a series of on-site outcomes-training sessions, and worked with Indianapolis University/Purdue University Indianapolis to create *Shaping Outcomes*, an online tutorial that provided a roadmap for prospective applicants on ways to plan for outcomes in audience knowledge, attitudes, skills, status, or behaviors. In 2008, the National Science Foundation developed and published its own *Framework for Evaluating Impacts of Informal Science Education Projects*, a rubric that identified such impact categories as awareness, engagement, attitude, behavior, and skills.

These efforts reflected the shift in emphasis from "outputs" (quantitative reports that captured numbers of attendees and other descriptive information about programs) to "outcomes," behavioral and skill-based results from participation in various activities or services that swept through many U.S. government agencies and were echoed by the private philanthropic sector. The focus was effectiveness, efficiency, and accountability, revealed by intentional planning, systematic evaluation, and measurable

results. According to Weil, this shift reflected a growing belief that if an organization “fails to provide a social benefit, it wastes society’s resources. To produce a social outcome—to provide a positive benefit to its targeted audiences—must be such an organization’s first responsibility.” As Peggy Rudd put it, “Outcome measurement has the potential to be a powerful tool to help us substantiate the claims we know to be true about the impact of libraries in our institutions and in our society.”

Our individual organizations have thus long felt the imperative to report on the impacts and results of specific programs and services. Now the mandate has expanded: How do various programs or services affect the effectiveness of the organization as a whole, and how does the work of any single organization make a difference in addressing broader or societal needs?

The Discourse around Public Value

In *Creating Public Value: Strategic Management in Government*, Harvard’s Mark H. Moore took a holistic view of impact and effectiveness (“public value”) within civic and non-profit contexts. Moore posited a ‘strategic triangle’, an interdependent relationship between an organization’s mission, its authorizing environment, and operations. The triangle’s three sides comprise: (1) the *public value* (mission) the organization seeks to produce (in the communities served); (2) the *authorizing environment* that provides sources of legitimacy and support; and (3) the dimensions of the organization’s *operational capacity* required to achieve the goals. In this model, the three sides of the triangle are interdependent and, ideally, maintained in equilibrium to achieve success. Building on this concept, Mary Ellen Munley, in “Evaluating Public Value: Strategy and Practice,” frames ways in which a public value orientation suggests new criteria for programmatic and institutional evaluation, including a focus on social impact; extending evaluation efforts beyond visitors and members to involve other stakeholders, including non-users; examining alignment among resources, achieved outcomes, and social needs; and viewing other organizations as “civic partners” rather than business competitors.

Collective Impact

Building on this public value frame’s emphasis on the organization as unit of measurement, collective impact has emerged since 2011 as practice and buzzword within many philanthropic and policy sectors. In *Leap of Reason: Managing to Outcomes in an Era of Scarcity*, Mario Morino asserted that pressures for accountability have only increased in the wake of the 2008-9 recession and that a quest for “transformative, systemic culture change” has brought with it “an inexorable pull toward multi-organization collaborations capable of delivering the comprehensive set of services and supports needed by those served.” Morino states that “incremental change is not enough”: “We need to rethink, redesign, and reinvent the why, what and how of our work in every arena from education to healthcare to public safety....It’s no longer good enough to make the case that we’re addressing *real needs*. We need to prove that we’re making a *real difference*.”

Accordingly, collective impact reflects this call for a systems-oriented approach that brings organizations together across communities to ‘move the needle’ on persistent and not easily solvable societal challenges. In this model, building on the work of such scholars as David Snowden (complexity) and Ronald Heifetz (adaptive leadership), collective impact is a strategy for harnessing the power of available community resources to tackle those complex, “wicked” problems that don’t have a replicable “playbook” solution.

In their many publications, John Kania, Mark Kramer, and others have identified “five conditions” of collective impact; highlighted case studies; moderated discussions and debates among policy makers, funders, and practitioners; and dug deeper into such issues as evaluation, “defining quality,” and systems leadership. The five conditions of collective impact are:

- a common agenda, a “shared vision for change including a common understanding of the problem and a joint approach to solving it through agreed upon outcomes”;
- shared measurement, where “participants hold each other accountable”;
- mutually reinforcing activities, “coordinated through a mutually reinforcing plan of action”;
- continuous, consistent, and open communication, supporting trust and shared objectives; and
- backbone support, “...a separate organization(s) with staff and a specific set of skills to serve as the backbone for the entire initiative and coordinate participating organizations and agencies.”

Contending that it is unrealistic to assume that “outcomes arise from a linear chain of causation that can be predicted, attributed, and repeated, even though we know that social change is often unpredictable, multifaceted, and idiosyncratic,” these proponents argue that “the forced simplicity of logic models often misleads funders to overlook the complex dynamics and interpersonal relationships among numerous nonprofit, for-profit, and government actors that determine real world events.”

They acknowledge that collective impact should not be misapplied to situations that would benefit from other, less complex, forms of partnerships, alliances, and networks. Nonetheless, they point out that some of the useful ‘mindset’ shifts that can result from a collective impact approach, such as acknowledging that there can be multiple solutions to problems (“silver buckshot” not a “silver bullet”); that data can yield valuable insights when used as a “flashlight” not a “hammer”; and that “progress moves at the speed of trust,” are essential to any successful collaboration.

Not surprisingly, there is a growing literature about evaluating collective impact (and other system-wide) initiatives. Preskill and Gopal, for example, note the limitations of traditional evaluation approaches for complex, multi-part initiatives. They advocate for flexibility, strengthening feedback loops, looking for “effective principles of practice in action, rather than assessing adherence to a predetermined set of activities,” and focusing on the nature of relationships and interdependencies within the system.

Current Collective Impact Learning Initiatives (based on the Kania/Kramer model)

STRIVE and Ready by 21 are two national, education-focused, collective impact projects, each addressing STEM learning and other 21st century skills in a larger learning framework. STRIVE, a “cradle to career” approach that now consists of a network of 61 cross-sector partnerships in 31 states, focuses on a data-driven approach to improving and reporting on a core set of academic outcomes. Its theory of action rests on four principles: engage the community; eliminate locally defined disparities; develop a culture of continuous improvement; and leverage existing assets.

Ready by 21, a project of the Forum for Youth Investment, aims to “improve the odds that all children will be ready for college, work, and life.” Through professional development, research, and community-based partnerships, Ready by 21’s theory of change links leaders (with a focus on accountability and evidence-based results), with the broader support system of family and community (including libraries and museums), and schools in order to create positive outcomes for youth. Its Readiness Project recently posted draft descriptions of “readiness practices” and “readiness abilities” (skills and mindsets) that span many disciplines and learning settings.

Critiques of Collective Impact

Despite its current popularity, collective impact has spawned critiques. Ken Thompson, a program officer at the Bill and Melinda Gates Foundation, has identified several challenges to successfully implementing this approach. He cites ineffective backbone organizations, confusion of purpose, conflicting funder agendas and requirements, “process fatigue,” and insufficient dollars. Other critics have pointed to the importance of balancing lengthy process and long term goals with immediate, short-term “wins.” They caution against adopting a collective impact approach for a problem that does not require such a complex process and infrastructure.

In “Putting Community in Collective Impact,” Richard Harwood asserts that, “It is simply not possible to *impose* a strategy on a community.” He urges collective impact proponents (often civic, corporate, and policy leaders) to respect and honor the community’s existing shared aspirations, “public narrative,” and stage of community readiness for any new problem-solving project. Harwood notes the power of such boundary-spanning, trusted community organizations as libraries, and currently leads the American Library Association’s initiative, “The Promise of Libraries Transforming Communities,” which has developed guides, tools, and professional development opportunities to “strengthen the role of librarians and libraries as conveners and facilitators of community innovation and change.”

Related Systems-Level Approaches to Learning: Connected Learning and Cities of Learning

While the jury is still out on the efficacy of the “branded” collective impact approach, the focus on systemic change endures and is likely to remain. The MacArthur Foundation’s Digital Media and Learning Initiative, focusing on teens and the relationship between on-site learning and digital media, has developed a “connected learning” model, including 21st century skills and STEM, supported by a growing body of research and practice. Its report, *Connected Learning: An Agenda for Research and Design*, describes the approach’s basis in current societal, technological, and demographic trends, its research and methodical foundation, and its implementation in various in- and out-of-school “contexts” for learning, including libraries.

Cities of Learning

The MacArthur Foundation and other local and national (private and governmental) funders have also invested in several burgeoning “cities of learning” projects. Chicago, San Francisco, Washington, DC, and Pittsburgh are some of the U.S. cities, aided by such digital affordances as social media, cross-analysis of various data sets, GIS systems and other tools, that are working to foster learning pathways that link and scaffold citywide, in- and out-of-school learning opportunities across age level, expertise, content focus, and neighborhood.

Pittsburgh’s Remake Learning initiative, for example, has brought together diverse public and private organizations, including libraries, to support a host of activities, resources, and professional development opportunities, including on-site and on-line learning. Remake Learning recently engaged diverse stakeholders to define a series of “specific and observable learning outcomes” in seven content areas relevant to the Pittsburgh region. These competencies describe knowledge, skills, and dispositions (credentialed through a digital badging system), in such areas as STEAM, robotics, coding and gaming, and design and making. An additional set of cross-cutting competencies include collaboration, empathy, open mindedness, and perseverance.

In addition to these multidisciplinary system-focused efforts (which typically include STEM), there have been many recent projects, especially following the National Research Council’s *Learning Science in Informal Environments* report, that are STEM-specific. The 2014 report, “How Cross-Sector Collaborations Are Advancing STEM Learning”(Traphagen and Traill) identifies 15 current STEM learning ecosystem projects, explores their potential benefits, distills ecosystem strategies and challenges, and offers recommendations for future ecosystem efforts. The four-year longitudinal SYNERGIES project, for example, based at Oregon State University, includes several public libraries in its study of STEM learning in a Portland neighborhood.

Conclusion

Whether we adopt an “orthodox” collective impact approach or develop our own variation, the emphasis on fostering effective STEM learning ecosystems (sometimes embedded in larger, multi-disciplinary efforts) is certain to grow and evolve. Research, practice, experimentation, and documentation will continue to inform these nascent efforts, which use digital technologies (to aggregate data, create effective communication among partners and with learners, map programs and opportunities, and develop new credentialing mechanisms) and which elevate certain professional skills (such as collaboration, relationship building, systems thinking, and data fluency).

Libraries are core, community-based, boundary-spanning organizations. They facilitate knowledge navigation and skill building; they are welcoming gathering places for learning and conversation; they are forums for civic discourse and problem solving. As libraries increase participation in STEM initiatives, they needn’t – and shouldn’t – go it alone. With a plethora of current and accessible resources, existing community-based and national efforts, and multiple organizations with complementary goals, librarians need not reinvent the wheel as they consider questions of evaluation and impact. They would do well to advocate for their specific added value, hone and articulate those library-centric skills and services that are most relevant to today’s STEM learning challenges, and integrate this work into extant and emerging learning ecosystems.

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