Annual Report 2014
A non-profit think tank working to increase understanding of how people build knowledge and are motivated to engage in solving society’s grand challenges, so all people can live life to the fullest in harmony with a thriving biosphere.

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Thanks to the New England Aquarium, Children’s National Medical Center, American Library Association, Alex Russ, Dr. James Baxter of the California Environmental Legacy Project and Kit Tyler of The American Mercury for use of images in this Annual Report.
A Note from the Chair

In 2014, our third year, the vision we imagined for NewKnowledge is starting to fill in:

NewKnowledge’s research helped UL, the global safety testing agency that was formerly known as Underwriters Laboratory, in the creation of their strategy for promoting innovation in environmental education. We’re the evaluators for the EPA’s environmental education capacity building projects that are led by Cornell University. Both partnerships support the work of the North American Association for Environmental Education and are helping those committed to creating the culture that will protect the ecological systems on which we all depend.

At the same time, our team is conducting research that promises to change what we know about how public social experiences impact science literacy. This massive undertaking in Indianapolis, outlined in this report, is literally reshaping how watershed education is conducted in a city. And that’s just one of our undertakings.

This report also presents some radical new ways of imagining documentary nature films as stories of joy and social responsibility rather than tragedy. The Bill and Melinda Gates Foundation may be winding down their library investments, but they sought out NewKnowledge to help the American Library Association and the Public Library Association support their work grappling with social change and how libraries can best measure success.

After reviewing this annual report, I did a little digging and discovered that NewKnowledge internal publications and peer reviewed journal papers authored by our staff have more than 30,000 citations, yet we’ve only been at this work for three years. An incredible result alone, this number is bolstered by conference presentations and partnerships at the highest level. We’re clearly starting to have the impact our founders imagined.

The time was surely right for us to create this new kind of nonprofit think tank. We saw the need for an organization that applies trans-disciplinary critical thinking from across the social and biological sciences to help organizations that seek to support social good. We didn’t create this as an advocacy organization, but rather as the intellectual muscle that can support those who seek to do good in our focus areas.

In reading this report, it’s clear that the remarkable staff at NewKnowledge is bringing our Board of Trustees’ vision to life. We set out to create a new kind of nonprofit that sits outside of academia, not hampered by disciplinary boundaries and formal classroom commitments. We imagined a learning community that pools intellectual capacity to serve government and social support organizations at the national scale. We imagined a crucible for young minds from all cultures and walks of life who would hone their craft and become the change we need. Today, we’re seeing that vision play out before our eyes.

The challenges we face as a globally connected society are great, but the promise of a new international society that believes in justice, social equity, and a thriving biosphere is possible. When I found myself marching alongside scientists and concerned citizens at the enormously successful People’s Climate March in New York City, I wasn’t surprised to encounter NewKnowledge staff. The march articulated scientific facts in this high profile, public forum. And it reaffirmed my belief that our society needs an organization that can imagine a better world. I was proud to know that our team is recrafting the map we need to effect positive global change.

Three years ago, we set that challenge to the NewKnowledge team: describe ways to better engage people in the problems; get better data; and offer the most insightful critiques to your partners because the truth will help liberate the creative problem solvers in our society. This report shows that they are living that vision.

This is only a glimpse of what was accomplished in 2014. Please join me in watching the path to a better future unfold at NewKnowledge.org.

Chair, Board of Trustees Marilyn Hoyt with staff member Susan Hannah in front of the St. Patrick’s Cathedral during their participation in 2014 March for Climate Change in New York City.
A Word from the President & CEO

This annual report outlines the substantial changes we’ve witnessed as our non-profit matured to full service in 2014. Following two years of developing a new approach to research that has meaningful impact on the challenges that face our society, 2014 saw unprecedented growth, expanded opportunities with the many organizations that support our work, and some key new ventures with private support for our team.

As we’ve matured, we’re also seeing an incredibly positive response to our publications. We can now look back on three years of work and see how the non-profits we’ve partnered with have used our recommendations to make decisions. At founding, we committed to supporting a vision where all people could live life to the fullest in harmony with a thriving biosphere. We haven’t let that vision rest, and we are starting to see the kindling catch fire. We’ve witnessed some projects that are now honed in on their goals, in particular the efforts of the National Network for Ocean and Climate Change Interpretation. Our team has been working alongside the trainers as this community of practice welcomes new members, helping the community to see potholes ahead, and documenting where their successes are starting to change the US narrative toward action that can remediate climate change. We know these voices are one note in a chorus, but we can proudly say that informal science learning communities are feeling the passion to get something done.

Central to all of our work is a commitment to being part of a social collaborative. We engage in small efforts like working together at a single library table rather than huddling at private desks or hidden in offices. We inhabit noisy, laughter-filled spaces that illustrate our commitment to finding joy in our work. The topics we explored this year included one community’s challenges with mesothelioma risk years after government remediation measures were complete. We explored teen risk-taking behaviors. We completed the assessment of curricula aimed at helping children in low socio-economic circumstances in the nation’s capitol take ownership of their own health practices. We launched a project to help technology developers test drone technologies. And we continue to help test commercial science learning games to ensure they are useful for all teens, not just science learners.

It’s hard not to admire the spirit of camaraderie in the office when you realize how many big challenges we are asked to tackle.

The skills and commitment of our team are fundamental to achieving our vision. My thanks go out to our entire staff and extended family of volunteers and interns that made our work possible. This year we welcomed our first group of teen research associates to undertake observational studies in New York, Chicago, and Seattle, exploring how teens use city environments for sport. We also welcomed a volunteer seeking to update her skills after 20 years in a different industry. We welcomed a PhD candidate in digital learning pedagogies and our first library intern.

Indeed, we managed to maintain an even keel as we grew throughout the year. In fall 2014, we were really on the move, opening a new office in Oceanside, California and relocating our New York team to a new larger space a few blocks from the Empire State Building. These changes reflect the expanding audience for our work and strategies for meeting a national demand.

As we end this hectic year, we all knew we’d moved toward a new level of success. Our full board upped their commitment to our cause and financially backed our work. And the law firm that has supported us from our founding, Skadden, Arps, Slate, Meagher & Flom LLP and Affiliates, donated all the furniture for our new offices in New York.

We publish this annual report as a celebration of our corporate third birthday. We’ve built a solid foundation and established some great partnerships that will pay off for years to come. I’m proud of where we’ve been, and hope that you’ll also visit our website or our blog to watch us grow.
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Goal 1 | Project Development

Seek out and develop projects to address societal problems that impede cultural advancement and are considered so large and persistent as to be insoluble.

In our third year since founding, our Vision for the Future and our four focus domains – wellness, the biosphere, media, and culture – have all achieved notable success. By year-end 2014, our portfolio was greatly expanded with many opportunities for continuing that work in 2015 and beyond. In 2014, NewKnowledge worked on 34 projects with an expanding pool of funders, including success with highly competitive federal grants with nationally renowned partners and a growing community of smaller non-profits and foundations awarding us grants and contracts. As a non-profit, we have also entered into agreements with a few privately held corporations to help advance social good.

Our projects challenged the NewKnowledge team to consider how collective action across sectors might solve some of society’s grand challenges. We grappled with public understanding of climate change science. We collaborated on four of the American Library Association’s initiatives to support inclusive thinking and how libraries contribute to expanded social engagement in communities. We continued to explore how computer technologies are influencing teen development. This year, we’re also working with new drone technologies for social good, developing monitoring strategies for ground dwelling endangered species to help land managers make good decisions. Our partners continue to pursue interventions to overcome those barriers. Furthermore, we developed new learning tools, including a series of training guides for professional environmental educators.

By number of projects, we built on our track record with significant work in the biosphere and with cultural change agents. Each of our growth areas represents a primary effort in one focus area. Each project built on our work in the other three domains. By exploring the intersections between all four, NewKnowledge strives to use critical thinking across projects to identify trends, predict patterns, and advance understanding about social change. We believe that exploring these intersections can help solve future problems. It is this think tank model that allows our partners to understand larger systemic problems and social trends that may influence their work. 

Figure 1. Distribution of work by primary mission fit.

Figure 2. The layering of mission fit.
New England Aquarium - In 2014, our independent think tank supported the three separate projects led by New England Aquarium (NEAq). These projects represent a prime example of how all four focus areas interact. We explored the cultural organizations that are working to change social narratives related to climate change through public discussion and media tools in ways that will promote wellness for people and the biosphere. The NSF-funded National Network for Ocean and Climate Change Interpretation (NNOCCI), NOAA-funded Visualizing Change experiments in public communication strategies, and a summative evaluation of NEAq’s IMLS-funded Visitor Engagement all helped advance understanding of how cultural organizations, media techniques, and development of positive self-efficacy by educators can help sustain the ocean systems on which all life depends. The first two projects represent a national community of practice seeking to refine techniques, while the third focused on redefining how the New England Aquarium operationalized these theories in practice as a major public cultural institution. Working on all three projects helped link theoretical models to operational issues, addressed how place can influence learning, and how a national context sets the tone for informal learning experiences.

Figure 3. New England Aquarium visitor experience staff working with families at the Blue Planet Action Center.
Biosphere: Exploring how people build understanding and motivate action that will create greater symbiotic relationships with the nature on which human life depends.

California Environmental Legacy Project – NewKnowledge’s public perception research helped shape the story of positive social change. The filmmakers used our data to craft effective messages to situate the story of environmental reconciliation as a positive social action in San Francisco public broadcaster, KQED’s two-hour documentary feature Becoming California. This is another project that illustrates how our focus on media and the biosphere come together to help people face society’s grand challenges head on.

Drone Use for Surveying Bird Nests – Land owners in areas with potentially endangered bird species must demonstrate that birds are not currently nesting before they can treat their land. In 2014, NewKnowledge received funding from USDA to work with UAV/drone specialists to develop an innovative, quick, economical, and effective survey technique to help with these assessments. The land user education program is a direct example of NewKnowledge promoting new ways of developing understanding about the biosphere.
Culture: Understanding how cultural actors can contribute to increased literacies and a more inclusive just society.

StreamLines – This year, our work began in earnest gathering baseline data for a four-year study on how environmental literacy moves through social vectors and public experience in Indianapolis. The project focuses on how the intersection of art and science can support the advancement of public science literacy. Our team of data collectors fanned out along six waterways to explore social narratives, mapping use of the river’s parks and community members’ interests in healthy waterways.

Bridging Cultures - NewKnowledge was commissioned by the American Library Association (ALA) to assess the impacts of six years of funding for the National Endowment for the Humanities’ Bridging Cultures: Muslim Journeys program. The program aimed to help public audiences in the US become more familiar with people, places, history, faith, and cultures of Muslims in the US and around the world through a curated set of collections and a public program series. NewKnowledge helped ALA to consider new strategies to measure social impact, and mapped the range of program outcomes that accrue when experienced library programming professionals can work with curated collections.

Figure 6. Stuart Hyatt records a music video to support his sound composition that explores science through music at Pogue’s Run in Indianapolis.

Figure 7. The Bridging Cultures: Muslim Journey’s Bookshelf at the Victory Branch of Ada Community Libraries in Idaho.
Media: Exploring how experiences with contemporary media shape potential for personal growth, acquisition of knowledge, and catalyze social action in society.

SportsLab:2020 – NewKnowledge’s three young research assistants participated in a real world model of what youth might do if invited to join an online design competition called SportsLab. The NSF-funded project is developed by EdGE at TERC as a strategy to engage youth who do not identify as science learners in STEM challenges. The research assistants documented how public spaces are used by youth for self-directed sport; explored these street athletes’ apparel and equipment needs; and what barriers might face youth with similar backgrounds if they were to engage with this online national competition sponsored by a major sports equipment and apparel company. Dr. Gupta presented findings from this research at the American Psychological Association’s Annual Conference in Washington DC.1

Figure 8. Research assistant Becky Shelton photographed some teens engaged in adventure activities in public spaces in Seattle.

Figure 9. A page from Becky’s field notes studying Parkour in Seattle.

Wellness: Exploring how to encourage self-efficacy in the pursuit of individual health and engagement in social action to overcome health disparities in our communities.

REACH Ambler – The Resources for Education and Action for Community Health (REACH) in Ambler is part of a larger, interdisciplinary study led by University of Pennsylvania’s Center of Excellence in Environmental Toxicology for a National Institutes of Health grant. The goal is to develop a model for educating community members and key stakeholders about environmental justice issues related to exposure to toxic substances so they can fully participate in decisions that affect their health. NewKnowledge worked with the leaders of this project to uncover residents’ beliefs, perceptions, and concerns related to environmental health risks in their community. In particular, we studied those concerns related to historical asbestos exposure before and since EPA remediation; and what might be needed to help encourage fuller participation in community management decisions that may have an impact on health.

Being Me - In 2014, the Children’s National Medical Center completed a five-year National Institutes of Health-funded effort to create hands-on, arts-based programs for elementary school students. This effort aimed to advance Next Generation Science Standards and increase the healthy choices of these children and their families. Our study showed that the flexibility of the in-school curriculum and after-school programs supported children’s learning and suited students’ wide range of backgrounds and abilities. The curriculum heightened children’s curiosity about science, their bodies, their own health, and what they can do to keep their families healthy. This experimental program revealed the challenges of working in Title 1 school situations, which necessitated an adaptable, nimble approach. The final program helped guide thinking about how health science can effectively intervene where health disparities remain a persistent challenge in the US.

Figure 10. Stream inside the remediated asbestos waste site in Ambler, PA.

Figure 11. Two friends display the asthma triggers bracelets they made to remind themselves of what they can do to help others.
GOAL 2 | Dissemination

Aggressively disseminate the implications of our work through communications vectors to professional, academic, lay, and media audiences.

From inception, NewKnowledge has worked to ensure our reports have depth and quality. The team has published extensively in their professional disciplines to ensure our work contributes to scholarly knowledge. We are also committed to public access to resources generated by our work. These resources, including learning tools, publications, peer-reviewed articles, trade publications, learning tools, and original data, are all publicly shared “for the good of our society.” This year, we have redoubled our efforts in print and online reports and articles, have increased our active social media presence (website, blog, and Twitter), and formalized our library policies including agreements on permanent archiving of our quantitative and qualitative data resources.

All publication efforts aim to capture the different perspectives that inform our work – the scholarly and individual cultural histories – while ensuring our approach meets the needs of our partners and their publics. From long multi-chapter reports (15 pages or more) to short study reports (under 15 pages), from academic peer-reviewed journal articles to blog posts on NewKnowledge.org or on our twitter account @NewKnowOrg, all communications are crafted to focus on the critical questions in a projects’ life and relate those findings to the emerging social context.

Our publications strategy seeks to tell the whole story to the whole community. This means keeping pace with emerging trends in data visualization, and the integration of visual assets such as photographs and film stills taken from primary fieldwork. To help our partners, we’ve introduced a new 4-Page report type, written in a precision journalism style to ensure our writing is reaching the largest possible audience. The precision journalism style incorporates behavioral and social science data to support a narrative arc. This writing style is intended to allow our partners to share our work with stakeholders and their publics. The objective narrative illustrated with key facts and quotes, aims to be free of technical jargon or terminology that is typical of peer-reviewed papers. The target reader for these reports is an active consumer of newsmagazines about topics outside their professional practices.

As part of our commitment to dissemination, our Board of Trustees unanimously endorsed new library and archive policies. This program uniquely advances our work through establishing data management protocols for data storage, protection of human subjects, and maintenance of datasets in accessible online libraries in perpetuity. In particular, as of 2014, NewKnowledge policy prescribes data management in accordance with the National Science Digital Library protocols set by the Experimental Economics Laboratory for Policy and Behavioral Research. The policy sets out a metadata plan that collects data for compliance with the external databases. We make data available in raw form to researchers in CSV, Excel, and SPSS format on request through our website.
Figure 13. Our report for the Brooklyn Botanic Garden\(^2\) represented a collaboration with volunteers who were trained in data collection and data management as participatory action researchers.

Academic publications and presentations are central to our knowledge dissemination efforts. For example, our study of Californian PBS viewers’ environmental identity, values, patterns of visiting parks, and reactions to the desirability of program scenario options was published in the journal of Mass Communications and Journalism\(^3\). Results revealed that viewers who had visited a park or viewed another nature program in the past two years were more likely to watch PBS programs on environmental topics irrespective of the scenario, and were more likely to feel that their identity is interconnected with nature. Analysis suggested that there were a handful of priorities that may present challenges to attracting these viewers, such as a mistrust of science and political motives for producing nature documentaries.

The NewKnowledge team was also active around the US, attending conferences relating to core projects and to further engage with professional conversations with emerging methods and theory. This past year team members presented our work at eight conferences between Canada and the US that reached audiences in psychology (American Psychology Association, Visitor Studies Association), library studies (The American Library Association; Library Research Seminar VI: The Engaged Librarian: Libraries Partnering with Campus and Community), conservation (Association of Zoos & Aquariums Annual Conference; North American Association for Environmental Education), and culture (National Science Teachers Association; Midwest Popular Culture Association; and Midwest American Culture Association).

Ensuring our work at NewKnowledge reaches global networks, we maintain an active social media plan that allows publications, presentations, public responses to current affairs, and outreach to capture moments of convergence in the work we do. One example includes Dr. Fraser’s comments cited in the Guardian about the research concerning the role of drones in conservation currently being studied by Dr. Danoff-Burg in California.


GOAL 3 | Collaboration

Create trans-disciplinary synergies that promote problem-solving and knowledge exchange.

We continue to grow our partnerships with groups actively involved in social change. A hallmark of our growing collaborations was the launch of three projects with organizations involved in understanding how libraries contribute to cultural change, and the arrival of private philanthropists actively interested in supporting our work to understand social change.

By the close of 2014, we had completed two strategic assessments for non-profits like ourselves who seek to promote social good. We helped The Century Foundation, a nearly 100-year-old policy think tank, to develop a comprehensive look at how their public actions and communications were leading to social policy adoption. We also worked for Second Nature, a group that supports sustainability in higher education, advance their organizational planning to ensure they are achieving impacts that align to their mission. We were founded as an organization that could pursue primary research and evaluation to advance social good. By the mid-point of our third year, we recognized that our critical thinking skills can also help partners to conceptualize their work in new ways, or challenge how we assess impact. A partial list of our partners speaks volumes about our efforts to engage in problem solving and knowledge exchange.

Partial List of Collaborating Organizations in 2014

- American Library Association
- Aquarium of the Pacific
- Association of Zoos and Aquariums
- Bill and Melinda Gates Foundation
- Butler University
- California Academy of Sciences
- California State University, Sacramento
- Cherry Hill School District
- Children’s National Medical Center
- Children’s Research Institute
- Cleveland Museum of Natural History
- Cloud Institute for Sustainability Education
- Cornell University
- Cranford Public School District
- Educational Gaming Environments group (EdGE) at TERC
- Exploratorium
- FrameWorks Institute
- GameGurus
- Humboldt State University
- Jordan College of the Arts Department of Dance at Butler University
- Knight Williams Research and Communication
- Mary Miss Studio
- Monterey Bay Aquarium
- Moodlerooms, Inc
- Museum of Science and Industry
- National Aquarium
- New England Aquarium
- NOAA Environmental Visualization Laboratory
- NOAA Pacific Marine Environmental Laboratory
- North American Association for Environmental Education
- Ocean Explorium
- Pennsylvania State University
- Poets House
- Seattle Aquarium
- Second Nature
- Tampa’s Lowry Park Zoo
- The American Mercury
- The Century Foundation
- The DaVinci Pursuit
- The Kinetic Project
- The Nature Conservancy
- The Ocean Project
- UL
- University of California, San Diego
- University of Pennsylvania
- Woods Hole Oceanographic Institution

Figure 15. Framing perspectives on EE and Climate Change, a panel discussion at the EPA-sponsored workshop at New York University featuring Dr. William Spitzer, Kari Fulton, John Carey, Caroline Lewis and NewKnowledge’s CEO, John Fraser.
GOAL 4 | Critical Thinking

Ask the hard questions about the fundamental issues at the center of conversations, to focus minds on confronting underlying problems rather than symptoms.

We seek to support critical thinking and engage in research activities that advance understanding of the critical challenges facing society. In this section, we highlight some key themes that have emerged in the past year.

Figure 16. Workshop notes exploring the outcomes that can be measured as part of the National Impact of Public Library Programs Assessment project for the American Library Association.
Building Capacity at Informal Science Learning Institutions

As much as 95% of our waking lives are spent outside of formal education settings. Consequently, the majority of scientific information that most people have as adults comes from what they learn as they visit zoos, aquariums, museums, botanical gardens, and similar Informal Science Learning Institutions (ISLIs). Helping to improve the quality and effectiveness of informal science learning institutions is a central focus for NewKnowledge. We conduct research and evaluation on a national scale that has transformed how ISLIs across the country talk about climate change, focusing on resolving political and social barriers that prevent informed discourse on this contentious topic. On local scales, we work with individual museums, zoos, and botanical gardens to help them achieve their goals of increasing knowledge about natural history, species conservation, nature design, sustainability, and children’s learning.

Figure 17. One of our feedback sessions with visitors and staff at the Cleveland Museum of Natural History.

- The National Network for Ocean and Climate Change Interpretation is working help informal educators communicate about climate and ocean change. Our studies with Penn State University are advancing understanding about how educator self-efficacy and social support among educators impact public understanding and engagement.

- Visualizing Change aims to provide ISLI interpreters with training and strategic framing tools, including NOAA datasets and visualizations. Our evaluation is being used to help refine techniques to cultivate a more climate literate public.

- Tampa’s Lowry Park Zoo is developing a new conservation-focused interpretation plan. We’re supporting this work by working with leadership, staff, docents, and visitors in activities to help shape a shared strategy for success.

- The Cleveland Museum of Natural History is undergoing a comprehensive re-development of its galleries and programs. We tested proposed exhibit concepts with Museum users to help Museum staff and their designers to create exhibits that are accessible, relevant, and inspiring.
Our Collective Health: Awareness and Opportunity

Everyone deserves the opportunity to make decisions that affect their own health. NewKnowledge pushes this fundamental value even further by working to empower communities and promote greater awareness of health and wellness issues among urban youth, public school communities, and groups traditionally underrepresented in biomedical and healthcare related fields. We pursue this mission by collaborating with students, teachers, academics, federal agencies, and the public sector to explore ways to address current disparities in healthcare and health outcomes. We support our partners as they advance student health learning and related career counseling, making valuable contributions to new models for community education and overcoming systemic issues in healthcare.

Figure 18. Exploring hands on activities aimed at promoting wellness through the National Children’s Hospital’s Being Me curriculum.

- **Being Me** was a project of the National Children’s Hospital that aims to promote children’s awareness of health issues and encouraged scientific inquiry through a hands-on, art-focused curriculum designed for urban public school communities.

The **REACH Ambler** project led by the University of Pennsylvania aims to develop a model for educating communities about environmental justice issues related to exposure to environmental toxins.

- **MedLab** is an education program at the Museum of Science and Industry that aims to increase student knowledge of science, health content, and health-related careers by allowing students to interact with a human simulator. NewKnowledge is undertaking a longitudinal study to see how these out of school experiences influence teens.
Shaping the Future of Libraries

Libraries have always been dynamic institutions. From their earliest days they have served numerous purposes, growing organically as new public needs arose. Public programming has become a key library service and an essential component of how libraries connect people with ideas in a changing world. Throughout their history, libraries have redefined the nature of their services in response to community needs. Programming is a profound indicator of how libraries meet emerging changes and critical concerns in their surrounding communities, such as opting for programs that promote awareness of religious diversity or train librarians as a way of strengthening civic partnerships. NewKnowledge has partnered with the American Library Association (ALA) to initiate the planning and implementing of a long-term, multifaceted research framework that seeks to understand the characteristics, audiences, impacts, and value of programming in libraries at the national level. In this way, we support the role of libraries as critical institutions, aligned with our mission of enabling citizens to live in a just and democratic society.

- The National Impact of Library Public Programs Assessment aimed to identify the characteristics, audiences, impacts, and value of library programming to develop best practices for designing, implementing, and evaluating future programming.

- With funding from the Bill and Melinda Gates Foundation, we collaborated with the Public Library Association (PLA) to identify strategies for PLA to support public library adoption of key outcome measures that will allow them to assess the impact of their work and speak more broadly to the field.

- Bridging Cultures: Muslim Journeys aimed to increase public knowledge of diverse Muslim cultures by distributing a collection of curated materials and supporting scholar-led discussions. Our evaluation measured impact of this program on libraries, librarians, and public audiences and developed a plan for libraries to conduct internal assessments of their programs.

- Libraries Transforming Communities seeks to strengthen libraries’ roles as core community leaders and change-agents by distributing new tools and resources focusing on how library professionals can engage with community members and build stronger local partnerships. As external evaluators for this Bill and Melinda Gates Foundation-funded effort led by the Harwood Institute for ALA, our work is helping guide the adaptation of proven techniques to suit the unique cultural values of library professionals.
Reimagining Environmental Education

The passion that abounds in environmental educators across North America is a large part of why this region had led the world in innovations in environmental and conservation outreach. For many years, these educators have worked on their own and with little organizational support. NewKnowledge has been supporting the organizations that work to create and improvement of large-scale environmental education initiatives. Our research and evaluation seek to enhance the impact of current practices by drawing attention to challenges. Our efforts with culturally responsive evaluation aim to increase racial and ethnic diversity in the pool of educators. This work ensures that each new educator’s culture shapes the field and that training strategies for the next generation of educators and leaders demonstrate increased culturally inclusive practices. Two of our national projects are directly having impact on environmental educators from all fifty states, ten provinces, and three territories.

UL Innovative Education Award was established as an annual prize awarded to innovative nonprofit programs that use the environment as a pathway to STEM learning. This effort is a collaboration between UL, the global testing and certifying organization, and the North American Association for Environmental Education. The award competition launched in 2014 was developed by NewKnowledge in partnership with NAAEE, based on our research on innovation and what it will take to draw attention to creative practices in the environmental education community.

EECapacity is an EPA-supported effort to improve the quality of environmental education by diversifying and strengthening the field of educators. The project is forging connections among community leaders, EE professionals, and volunteers as part of an effort to expand the critical role environmental education plays in fostering healthy environments and communities. NewKnowledge is the external evaluator for this major national effort.

Photo © Alex Russ

Figure 20. Some of the participants working in the Anacostia River to help solve a persistent environmental problem. Part of the EECapacity efforts to work with communities that can reimagine EE.
Using Media and Art to Increase STEM Learning

Policy makers and educators have long known that the US must invest in the STEM career pipeline to compete in an increasingly globalized marketplace. Fostering STEM literacy among the young and old – regardless of their career – will be critical for helping citizens make informed decisions about environmental sustainability, healthcare, and policy. NewKnowledge explores how innovative methods, including digital media, online education, and visual and performance art, may be applied to increase STEM learning and interests.

- **Leveling Up** aims to understand the potential of free-choice video games to transform STEM learning among high school students by assessing students’ abilities to make connections between gameplay, the STEM curriculum, and the natural world. We are the external researchers replicating the game developers studies and field testing these innovative commercial games for youth.

- **SportsLab: 2020** is an online collaboration space for middle and high school youth to engage in a team competition in sports-focused design challenges. We are studying the effectiveness of using sports and games to increase youth interest and knowledge of STEM and using these data to provide recommendations for optimizing the digital collaboration space.

- The **California Environmental Legacy Project** was an integrated program including a public television documentary, Becoming California and associated place-based programming, professional development, and online education media aimed at increasing Californians’ understanding of regional and global environmental change. We studied how exposure to various combinations of these experiences affected participants’ knowledge of and attitudes towards the environment.

- At year end, we were mid-way through a collaboration with the California Academy of Sciences to develop their two-year strategy for their online education initiatives that integrated and advanced the various learning opportunities offered under a single social change framework.

- **Indianapolis: City as a Living Laboratory** investigates how artistic installations in a city’s public spaces can promote science and environmental sustainability learning among urban dwellers. We are leading the social science research for this project.
GOAL 5 | Pluralism

Support a pluralistic NewKnowledge community with broad academic, life, and work experiences that contribute diverse perspectives to the problems we explore; support and promote the personal and professional growth and self-actualizing pursuits and goals of all who join our learning community.

Academic Research and Evaluation

Our work continues to contribute to ensuring that all cultural voices have a central place in all of our work. This focus area grew substantially in our projects and practice, with three projects where our evaluation efforts sought to help our partners ensure that diverse cultural perspectives created positive learning opportunities. Our internal efforts included growing our core team with five new researchers from different scholarly traditions, and a concerted effort to support work experience for new cultural voices in our practice.

In spring 2014, we received a one year commission to help the American Library Association, the National Endowment for the Humanities, The Carnegie Corporation of New York, and the Geraldine R. Dodge Foundation assess the impact of their six-year investment in distribution of a curated series of books and support for a public programs series under the well-respected ALA “Let’s Talk About It” effort to expand understanding between cultural communities in America.

Supporting the Next Generation

We sought out opportunities for new scholars to join our team. A highlight was notification that we were selected in 2014 as a host site for the American Evaluation Association’s Graduate Education Diversity Initiative (AEA-GEDI) and welcomed Justina Grayman, a PhD Candidate in Psychology at New York University as our first GEDI scholar who worked alongside Dr. Gupta on cultural responsive evaluation planning. With EECapacity funding, we were also able to invite PhD candidate, digital inclusion activist, and US veteran, Antwuan Wallace to join us in February 2014 to help us think about how low-socio economic status individuals can develop self-advocacy skills. And Sophie Gloeckler joined us as a part time research assistant to hone her skills in research methods and data analysis while she plans her next steps in graduate school.

Through the NSF-funded SportsLab: 2020 led by EdGE at TERC, we were able to hire three independent undergraduate students to undertake a study in their communities about how youth use the city for self-directed sport. These three new researchers were trained in the protection of human subjects in research and collaborated on their first professional career opportunity as researchers conducting field studies and ethnographic research into youth culture. We were pleased to be able to give these aspiring social scientists their first opportunity as professionals. We look forward to continuing these positive efforts to ensure that next generation social scientists represent all voices in US.
Building Organizational Capacity

Our full-time ranks grew in 2014, with a strategic focus on broadening our collective skill set, expanded the geographical representation, and enriched trans-disciplinary perspectives.

Dr. Rebecca Norlander is a leader in human rights education and digital communication. Her work expanded our efforts to support equality and social justice. Dr. Norlander was instrumental in identifying synergies between our work and non-profit partners working to advance social policy like The Century Foundation, the Bill and Melinda Gates Foundation, and the Harwood Institute.

Dr. Fiona McDonald, a visual anthropologist, brings ethnographic and curatorial expertise to our work. A respected Tlingit translator and advocate for recognition of the cultural rights of indigenous peoples, Dr. McDonald has helped shape our research with Muslim cultural representation in libraries and is a central part of the ethnographic studies of public science learning in Indianapolis. Dr. McDonald is a founding member of Ethnographic Terminalia and continues to work with the group on the development of exhibitions around the world.

As part of our commitment to public access, we welcomed our first library intern, Sean Beharry who worked to formalize our library policies and rationalizing our digital data management program. He helped support our commitment to the National Science Digital Library and data access for other researchers. Mr. Beharry was an active participant in our library research and represented our research at library conferences.

As part of our growing team, we were pleased to welcome Susan Hannah to help grow our work in the wellness area, tackling data collection related to health disparities curricula in Washington DC, and as a key member of our team considering the understanding of health risks in a community that has experienced significant impacts from asbestos contamination. In addition to her work with NewKnowledge, Ms. Hannah is a PhD candidate completing her studies of women and leadership.

As we entered the fourth quarter of 2014, our work in the US west grew substantially and we recognized the need to think more broadly about how we can serve a national community. To help manage that growth, we invited Dr. James Danoff-Burg, an internationally experienced conservation biologist, to join us as our Chief Operating Officer, to lead our new California office, and to help expand our efforts to advance understanding of coupled human/ecological systems.

Our work with science learning, museums, and media also gained the expertise of Dr. Su-Jen Roberts, a conservation biologist who focuses on exploring informal science learning. Dr. Roberts joined our team in September to support our efforts at the Cleveland Museum of Natural History. Dr. Roberts brings her passion for understanding the complexity of animal behavior and how natural history expands understanding.

At the conclusion of 2014, we now have staff and fellows based in Chicago, Greater Philadelphia, and Maui to support our team in New York, NY and Oceanside CA.
GOAL 6 | Financial Sustainability

Work to develop a funding scheme and work process to ensure the longevity and fiscal health of the organization.

For the third year in a row, we have delivered above expectation on our financial plan, improving income and diversifying our funding base. At the conclusion of our third year, we can confirm that we experienced over 50% growth in earned revenue in each of our three years in operation. To achieve this goal, our team has made progress in several areas. We have successfully delivered our program research as close to budget as possible by watching time and effort, while continuously striving to ensure all of our partnership efforts leverage our in-house expertise. To achieve this steady growth, we have carefully managed our cash flow and worked to diversity funding sources, with 2014 marking substantial efforts to secure private philanthropic support for our efforts.

The majority of our funding was derived from federally funded sources as secondary sub-awards and contracts from non-profit research organizations. In 2014, however, the proportion of research projects or strategic planning efforts applying our research to practice was funded through private philanthropy and shows promise of growth in coming years.

As the following pages will show, NewKnowledge operates as a very lean organization, expending approximately 22% of overall revenue on general management and operating expenses, representing a 26.54% average federally allowable indirect rate on direct expenses. These costs are well below the average for academic institutions and most non-profits, primarily due to the very real efforts made by our staff to live modestly within our means and to reflect our values of parsimony and conservation.

Figure 23. Distribution of originating sources for funding support.

Figure 24. Distribution of originating federal funds.
As a think tank, we could not do our work without the incredible minds that are on our staff and our Research Fellows whose contracts are part of that effort and represent 74.2% of our total annual budget in 2014. Our next highest single expense is travel associated with project work, representing only 7.4% of our budget nearly matching the 6% cost of consultants and Fellows who help us deliver on the mission.

One of the reasons we were able to live so well within our means was the incredible commitment by a growing team who worked at home and shared desks, chairs and computers. Fortunately, our growth was matched by increase in funding from many agencies and organizations. By the end of 2014, we had outgrown our offices with the addition of five new team members and relocated to a new space in Oceanside, California and our first permanent home on 37th St in New York on the first of December. We anticipate that the operational efficiencies will change a bit in coming years but we remain committed to being a lean organization that’s on the move.

Figure 25. Distribution of expenses.

Figure 26. Change in funding support by originating source of funds.
2014 Donors

NewKnowledge gratefully acknowledges the contributions of our donors who provided essential support during the past fiscal year. Without the generous donation by Skadden, Arps, Slate, Meagher & Flom LLP and Affiliates of the full office furnishings for our new office in New York, our relocation would have overstretched our resources. And of course, the generosity of our entire board helped to support our public mission.

American Express Company
Dr. Paul J. & Bonnie L. Boyle
Carolyn Gray
Andrea Green, JD
Marilyn Hoyt
Dr. John Fraser & Patrick Guilfoyle
Judith M. Koke
Julia Mair
Leonard P. & Chitra Singh
Skadden, Arps, Slate, Meagher & Flom LLP and Affiliates
Staples Inc.
Dr. Wednesday Martin & Joel Moser
Zetek Corporation
Statement of Financial Position
Year ended December 31, 2014, 2013 and 2012

<table>
<thead>
<tr>
<th>Assets</th>
<th>2014</th>
<th>2013</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$ 15,045</td>
<td>$ 33,558</td>
<td>--</td>
</tr>
<tr>
<td>Contract service fees receivable</td>
<td>185,630</td>
<td>130,183</td>
<td>222,918</td>
</tr>
<tr>
<td>Prepaid expenses</td>
<td>4,000</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Security deposit</td>
<td>15,000</td>
<td>4,500</td>
<td>--</td>
</tr>
<tr>
<td>Furniture, equipment &amp; leasehold improvement</td>
<td>22,694</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td><strong>$ 242,369</strong></td>
<td><strong>$ 163,741</strong></td>
<td><strong>$ 222,918</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Liabilities and Net Assets</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Liabilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts payable and accrued expenses</td>
<td>$ 68,124</td>
<td>73,370</td>
<td>94,085</td>
</tr>
<tr>
<td>Loan payable</td>
<td>26,703</td>
<td>36,000</td>
<td>56,000</td>
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<tr>
<td>Unearned revenue</td>
<td>5,433</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td><strong>$ 94,827</strong></td>
<td><strong>$ 114,003</strong></td>
<td><strong>$ 162,439</strong></td>
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<tr>
<td>Net Assets</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Unrestricted</td>
<td>147,542</td>
<td>53,438</td>
<td>60,479</td>
</tr>
<tr>
<td><strong>Total Net Assets</strong></td>
<td><strong>$ 242,369</strong></td>
<td><strong>$ 53,438</strong></td>
<td><strong>$ 222,918</strong></td>
</tr>
</tbody>
</table>

Figure 27. Sources of revenue and revenue growth.
**Statement of Activities**


<table>
<thead>
<tr>
<th>Revenue and Support</th>
<th>2014</th>
<th>2013</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract service fees</td>
<td>$1,045,716</td>
<td>$674,159</td>
<td>$662,950</td>
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<tr>
<td>Contributions in-kind</td>
<td>31,457</td>
<td>0</td>
<td>50,000</td>
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<tr>
<td>Contributions</td>
<td>6,816</td>
<td>3,250</td>
<td>737</td>
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<tr>
<td>Other income</td>
<td>1,234</td>
<td>0</td>
<td>--</td>
</tr>
<tr>
<td>Total Revenue and Support</td>
<td>1,085,223</td>
<td>$677,409</td>
<td>$713,687</td>
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</table>

<table>
<thead>
<tr>
<th>Expenses</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Services</td>
<td>$802,587</td>
<td>$540,869</td>
<td>$399,347</td>
</tr>
<tr>
<td>Supporting Services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management and general</td>
<td>169,682</td>
<td>100,429</td>
<td>229,303</td>
</tr>
<tr>
<td>Fundraising</td>
<td>18,850</td>
<td>43,152</td>
<td>24,558</td>
</tr>
<tr>
<td>Total Supporting Services</td>
<td>188,532</td>
<td>143,581</td>
<td>$253,861</td>
</tr>
<tr>
<td>Total Expenses</td>
<td>$991,119</td>
<td>684,450</td>
<td>$653,208</td>
</tr>
<tr>
<td>Change in Net Assets</td>
<td>94,104</td>
<td>(7,041)</td>
<td>60,479</td>
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</table>

<table>
<thead>
<tr>
<th>Net Assets</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning of Year</td>
<td>53,438</td>
<td>60,479</td>
<td>--</td>
</tr>
<tr>
<td>End of Year</td>
<td>$147,542</td>
<td>$53,438</td>
<td>$60,479</td>
</tr>
</tbody>
</table>

*Figure 28. Distribution of Audited Functional Expenses*

*Figure 29. Allocation of allowable expenses for federal indirect rate application at 44.7% of Total 2014 Program Services.*
## Statement of Functional Services

<table>
<thead>
<tr>
<th>Service Description</th>
<th>Program Services</th>
<th>Management and General</th>
<th>Fundraising</th>
<th>2014</th>
<th>2013</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and benefits</td>
<td>$519,085</td>
<td>$141,304</td>
<td>$15,698</td>
<td>$676,087</td>
<td>$411,459</td>
<td>$373,451</td>
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<tr>
<td>Travel, meals, and lodging</td>
<td>71,718</td>
<td>1,727</td>
<td>192</td>
<td>73,637</td>
<td>35,511</td>
<td>35,792</td>
</tr>
<tr>
<td>Consultants</td>
<td>59,371</td>
<td>131</td>
<td>15</td>
<td>59,517</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Occupancy</td>
<td>28,409</td>
<td>7,733</td>
<td>858</td>
<td>37,000</td>
<td>31,180</td>
<td>14,977</td>
</tr>
<tr>
<td>Accounting and audit</td>
<td>24,981</td>
<td>6,800</td>
<td>755</td>
<td>32,536</td>
<td>14,423</td>
<td>3,777</td>
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<tr>
<td>Professional fees</td>
<td>19,685</td>
<td>0</td>
<td>0</td>
<td>19,685</td>
<td>159,673</td>
<td>148,777</td>
</tr>
<tr>
<td>Fees and licenses</td>
<td>15,631</td>
<td>2,983</td>
<td>331</td>
<td>18,945</td>
<td>0</td>
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<tr>
<td>Supplies</td>
<td>8,940</td>
<td>2,082</td>
<td>231</td>
<td>11,253</td>
<td>3,845</td>
<td>22,510</td>
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<tr>
<td>Office supplies</td>
<td>9,920</td>
<td>799</td>
<td>89</td>
<td>10,808</td>
<td>4,792</td>
<td>4,178</td>
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<tr>
<td>Electronic supplies</td>
<td>8,190</td>
<td>1,295</td>
<td>144</td>
<td>9,629</td>
<td>5,311</td>
<td>20,186</td>
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<tr>
<td>Conference registration</td>
<td>8,431</td>
<td>486</td>
<td>54</td>
<td>8,971</td>
<td>5,629</td>
<td>7,750</td>
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<tr>
<td>Information technology fees</td>
<td>6,539</td>
<td>419</td>
<td>47</td>
<td>7,005</td>
<td>609</td>
<td>896</td>
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<tr>
<td>Insurance</td>
<td>3,596</td>
<td>979</td>
<td>109</td>
<td>4,684</td>
<td>1,760</td>
<td>4,253</td>
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<tr>
<td>Participant support</td>
<td>4,071</td>
<td>0</td>
<td>0</td>
<td>4,071</td>
<td>445</td>
<td>3,326</td>
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<tr>
<td>Telephone</td>
<td>2,369</td>
<td>543</td>
<td>60</td>
<td>2,972</td>
<td>2,190</td>
<td>2,002</td>
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<tr>
<td>Membership dues and subscriptions</td>
<td>1,975</td>
<td>525</td>
<td>58</td>
<td>2,558</td>
<td>3,154</td>
<td>2,318</td>
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<tr>
<td>Postage and shipping</td>
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<td>163</td>
<td>18</td>
<td>2,253</td>
<td>1,401</td>
<td>705</td>
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<td>Depreciation</td>
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<td>391</td>
<td>44</td>
<td>1,875</td>
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<td>0</td>
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<td>Moving expenses</td>
<td>1,382</td>
<td>376</td>
<td>42</td>
<td>1,800</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Donations to other organizations</td>
<td>1,075</td>
<td>293</td>
<td>32</td>
<td>1,400</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Office maintenance</td>
<td>888</td>
<td>242</td>
<td>27</td>
<td>1,157</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Interest expense</td>
<td>645</td>
<td>176</td>
<td>19</td>
<td>840</td>
<td>1188</td>
<td>087</td>
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<tr>
<td>Miscellaneous</td>
<td>2,174</td>
<td>235</td>
<td>27</td>
<td>2,436</td>
<td>1880</td>
<td>4026</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>802,587</strong></td>
<td><strong>169,682</strong></td>
<td><strong>18850</strong></td>
<td><strong>991,119</strong></td>
<td><strong>684450</strong></td>
<td><strong>653208</strong></td>
</tr>
</tbody>
</table>
The 2014 NewKnowledge Team

The 2014 Team

John Fraser, Ph.D., AIA, President & CEO
James Danoff-Burg, Ph.D., Chief Operating Officer
Beverly Sheppard, Director, City Learning Initiatives
Kate Flinner, M.A., Manager of Evaluation and Communications Programs
Jamie Adges, Research Associate
Nezam Ardalan, M.A., Researcher
Lynn Battaglia, M.A., Accounting Manager
Sean Beharry, M.L.S., Library Intern
Sophie Gloeckler, Research Associate
Justina Grayman, Graduate Education Diversity Initiative Intern, Fall 2014
Rupu Gupta, Ph.D., Researcher
Susan Hannah, M.Phil., Researcher
Kenneth Lo, M.U.P., Researcher
Fiona P. McDonald, Ph.D., Researcher
Rebecca Norlander, Ph.D., Researcher
Shelley Rank, M.A., Researcher
Su-Jen Roberts, Ph.D., Researcher
Christina Shane-Simpson, M.A., Ph.D. Candidate, Digital Research Fellow
Laura Tietjen, M.A., Researcher & Administrator
Antwuan Wallace, EECapacity Community Guidelines Project Fellow

Board

Marilyn Hoyt, Chair & Secretary,
2014 Audit Committee Chair, Finance Committee Member
Judith M. Koke, 2014 Treasurer
2014 Finance Committee Chair, 2014 Audit Committee Member
Nora de la Serna, 2013 Treasurer
2013 Finance and Audit Committee Chair
Leonard P. Singh, Director, Finance & Audit Committee Member
Paul Boyle, Ph.D., Director
Carolyn Gray, Director
Julia Mair, Director
Wednesday Martin, Ph.D., Director
John Fraser, Ph.D., AIA, President & CEO (ex-officio board member)
Reporting to the Board for Financial Oversight: Controller Tony Zisa

2014 Fellows

Marie Keem, Ph.D.
Kin Kong, Ph.D.
Shelley Stern, LCSW, Ed.M.

And Steve the NY office dog
Publications

Peer-Reviewed Papers


Internal Publications

NSF.51.051- TERC DRK: Leveling Up


IMLS.57.058: Mystic E-port

EPA.60.064- EECapacity


NIH.90.075 – Being Me

NIH.66.077- MSI SIMLAB


PVT.68.101-BBG

NSF1.52.111- NNOCCI 2
Stern, S., Finner, K., Fraser, J. (4 March 2014) NNOCCI 2 Study Circles Monitoring: Fall 2013 Cohorts, Salt Lake City and Tampa. (NewKnowledge Publication #NSF1.52.111.08). New York: New Knowledge Organization Ltd.


NSF2.97.115- 1 Call
