

The Following Testimony is Provided by:

Jared Bixby, President of the Board of Directors for the Kansas Association for Conservation and Environmental Education (KACEE) and Curator of Education for Sunset Zoo in Manhattan, Kansas.

The Education and Outreach Working Group has met multiple times over the past few months, and multiple representatives from KACEE and Informal Education Institutions (like zoos and nature centers) have participated in these meetings to provide input. The following testimony is to provide background support for proposals identified by Dana Ladner, who is leading the Working Group.

Kansas Association for Conservation and Environmental Education (KACEE):

KACEE is among the first, and is one of the largest conservation & environmental education organizations in the nation, representing Kansas as a leader in a national network that reaches over 500,000 people each year. In Kansas, KACEE supports education, outreach and engagement programs statewide to advance the missions of our natural resource agency, business and industry, preK-12, higher education, and informal education partners throughout a statewide network comprised of more than 250 organizational members, 350 individual members, and over 550 schools. More information about KACEE can be found at <http://www.kacee.org/>.

Water Education Efforts of KACEE

Below are examples of efforts led by KACEE that can be associated with water education in Kansas.

1. Project WET – Project WET is an exciting water education program which focuses on water related topics such as atmospheric, surface, and ground water; water history; chemistry; watersheds; water economics; and water stewardship. KACEE has received varying levels of support for this program, which impacts its ability to effectively and efficiently engage classroom teachers and informal education institutions around Project WET. The Kansas Department of Health and Environment’s Bureau of Water currently provides funding to KACEE to support Project WET implementation.
2. Water Festivals – Water festivals are educational, interactive, and fun events that increase awareness and appreciation of local water resources and issues. They are an effective educational tool because they involve local citizens in a water education experience that addresses locally important water resources and issues, and KACEE supported the first water festivals in Kansas and still provides resources for ongoing festivals.
3. Kansas Green Schools Network – A network of over 550 schools that KACEE support by offering professional development, networking, grants, curricular resources and recognition programs. Kansas Green Schools connects kids to nature, provides a real-world context for STEM, supports healthier/active lifestyles, and encourages students to take action to improve their schools, communities, and the environment. Through this network, KACEE facilitates partnerships and mini-grant programs between schools, school districts, and various Bureaus within the Kansas Department of Health and Environment. KACEE has also developed school building investigations specific to Kansas that help guide teachers in leading their students to conduct water investigations to identify water conservation and water quality improvement opportunities and develop strategies to improve water use on school grounds.
4. Kansas School Gardens – Similar to the Kansas Green Schools Network, KACEE launched a school gardens program with support from a grant through the Kansas Department of Agriculture. KACEE has a curriculum developed around school gardens, and the current grant is supporting the development of community-school partnerships that will support school garden programs year-round with the goal of developing model programs other schools can implement. While this program is not currently targeting water conservation or water education, it is designed to

facilitate direct connections between schools and agricultural producers that are rich with opportunities for learning about water. With funding support, the water education components of the Kansas Green Schools and Kansas School Gardens programs could be expanded and the reach of these programs extended.

5. WRAPS – Kansas Watershed Restoration and Protection Strategy (WRAPS) offers a framework that engages citizens and other stakeholders in locally based watershed planning and implementation efforts aimed at protecting and restoring Kansas watersheds. The WRAPS program is unique because the natural resource agencies of Kansas, supported by the Environmental Protection Agency, are seeking citizen and stakeholder input on how to best manage and protect our watersheds. Through WRAPS, local, state and federal program resources are being streamlined to do just that.

Informal Education Institutions

Kansas has numerous informal education institutions (IEIs), like zoos, science centers, and museums. These institutions support PK-12 education, as well as out-of-classroom education and community education. IEIs engage with each other to various degrees, and associations like KACEE facilitate direct interactions that increase potential impacts. Recently, a group of nearly 40 IEIs came together to provide testimony on the impact they all have on formal education to the Kansas State Board of Education. This presentation was made on Tuesday, January 12th, 2016. This impact is summarized below, and it's established associations, much like KACEE, that holds the most potential to generate cohesion among efforts to maximize impacts for a collective effort.

Impacts of IEIs on Formal Education

- IEIs are located in numerous counties across Kansas from Finney to Wyandotte
- Of the nearly 40 participating institutions, 19 reach audiences statewide and 15 connect regionally
- Collectively, the reporting institutions provided educational programming to 526,000 students with a total of over 835,000 contact hours
- There were 21 IEIs that reported having provided professional development for nearly 3,500 teachers, support staff, and administrators across Kansas.
- IEIs also reported partnerships between themselves and schools, school districts, and Kansas State Department of Education
- IEIs support classroom teachers around science, math, social studies, ELA, the arts, and more; most IEIs, 26, reported connecting programming to science
- Support for formal education included public, private, and home schools

As indicated above, KACEE and Informal Education Institutions have established networks and resources that either connect directly to water education or can be modified easily to incorporate it. This reach and impact is one that should not be recreated, but one that should be capitalized on and supported. This has been discussed in the Working Group meetings and I feel are represented by the proposed efforts. This effort is highlighted in the strategy of deploying a granting model for K-12 and out-of-classroom education.



Jared Bixby



Traci Kallhoff



EDUCATION

Tracey Tomme

Project IEI

What is the impact of IEs on Formal Education?



Schane Anderson



Margaret Hennessey-Springe

SALINA **art**center

Ann Marie Morris





Jared Bixby



Traci Kallhoff



Tracey Tomme

Project IEI

- Question posed to Informal Education Institutions by Sally Cauble:
What is the impact of IEIs on Formal Education?
- Put together a small group that represents the various types of IEIs such as nature centers, zoos, museums, science centers, and art centers
- Have met regularly
- Discovered many commonalities
- Worked together to list and poll other facilities – goal is to reflect as many IEIs as possible
- 39 Informal Education Institutions responded to our survey out of 59 contacted



Schanee Anderson



Margaret Hennessey-Springe



Ann Marie Morris



Reach – A Snapshot

Numbers of **Kansas K-12 Students** Served Each Year = **526,305 served** by 39 reporting IEs

With **contact time** from .5 to 25 hours per student for a total of **835,000 hours** or 1.59 hours per student served on average

Geographic locations – 13 Counties Represented (Harvey, Sedgwick, Dickinson, Wyandotte, Riley, Geary, Reno, Shawnee, Johnson, Saline, Douglas, Finney, Lyon)

Reported Target Reach by IEI

- City/County = 5
- Regional = 15
- Statewide = 9
- Statewide and Surrounding States = 5
- Nationwide = 5



Reach – A Snapshot

21 reporting IEs Provided Professional Development for **3,397** educators, support staff, and administrators



Align with Standards:

Science = 26

History/Social Studies = 19

English/Language Arts = 14

Math = 9

Visual Arts/Music/Theater/Dance = 9

Primary Content Areas:

Science = 24

History/Social Studies = 17

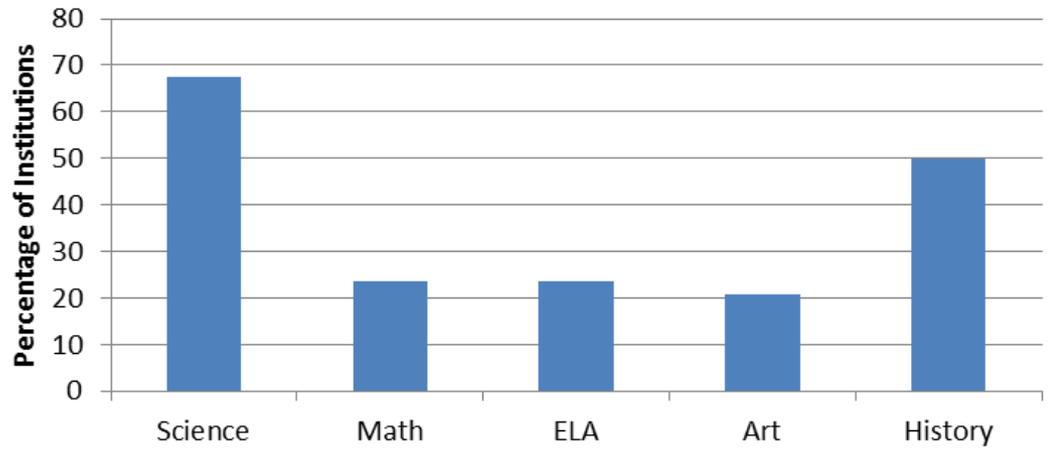
English/Language Arts = 9

Math = 7

Arts/Music/Theater/Dance = 9

Physical Education = 1

Topics Covered by Informal Education Institutions





Do Ho Suh, *Some-One*, 2004

Collection Nerman Museum of
Contemporary Art

The Educational Value of Field Trips:

<http://educationnext.org/the-educational-value-of-field-trips/>

How have IEI's assisted in the classroom?



- KCDC partnered with USD 450 and Bartlett&West Engineering Firm to create an engineering field trip for grades 3-5 that meets and exceeds KCCRSS engineering standards.
- KCDC has worked with USD 501 and USD 437 to create programming that addresses unmet needs in all districts.
- EP contracted with USD259 to create 60 science activities that aligned with ELA, Social Studies and introduced NGSS.
- EP contracted with USD259 as a business partner in a Math Science Partnership Grant to deliver professional development and be the host site for training sessions.
- Cosmosphere worked with Clay Center and Pratt USDs to design, develop, and test a STEM-based historical simulation, Cosmo Crisis. It is now being tested for remote delivery.

Formal Education Audiences

Students

- Classrooms
- Gifted Programs
- Special Needs Students
- Title I Schools

Staff/Faculty

- Teachers
- Pre-Service Teachers
- Support Staff
- Administration



How We Connect

- School & District-wide Partnerships
- Standards Based Programs
- Teacher Professional Development
- Online Resources
- Support New Standards Development



Creating Memorable Moments

The informal education institutions connect with school age children and their families in many ways.



Classroom Visits

Over 98 percent of IEI provide structured programs for school aged children both at school as well as at the IEI

This occurs in field trips and outreach programs. More than 300,000 school aged students visit our institutions in the state of Kansas. Providing hands-on real life connectors to what students are learning in the classroom.

15 percent also interact with classrooms virtually

Teacher Workshops

95 percent of the informal education institutions host workshops to strengthen classroom teachers

Workshops generally focus on science and technology related themes

Some IEIs also hold workshops for administrators



Underserved populations

- 50 percent of our institutions work with homeschool families
- 37 percent of our institutions offer discounts to Title1 schools
- 30 percent offer after school alternatives to schools
- Many institutions connect with special needs students at the students level instead of grade level



What do the evaluations show?

Sumner County - 3rd & 4th Grade *(statistical significance is +/- 1)*

Student:	<u>STEM Attitude</u>	<u>STEM Career Choice</u>
Control Group	- 0.2	- 0.3
Sumner County	+2.8	+6.1
Year 1 / Year 2	+4.9	+3.6

Teacher Confidence:	<u>STEM Knowledge</u>	<u>STEM Instruction</u>
Control Group	1.7	- 0.4
Sumner County	+7.3	+7.3
Year 1 / Year 2	+2.7	+4.5

Hyde Elementary - Year 2 - USD 259 (Wichita) *(statistical significance is +/- 0.5)*

Student attitude:	<u>Science</u>	<u>Technology</u>	<u>Engineering</u>	<u>Math</u>
Control Group – Elementary	- 0.1	+0.3	+0.3	+0.2
Hyde Elementary	+1.0	+0.5	+0.6	+0.8

Teacher:	<u>Confidence to Teach STEM</u>	<u>STEM Instruction</u>
Control Group – Elementary	+0.9	+ 1.4
Hyde Elementary	+4.1	+11.1

How do parents and students respond?

General feedback:

“Thank you so much for such a great experience! It can't be easy to spend two weeks with 8 teenagers!! My child gained a lot of knowledge and experience, as well as self-confidence and independence.”

“I learned a lot and I am ahead of the students in my class because we discussed it at the camp while the people in my grade are just now seeing it.”

“Overall, the experience was great because I got to learn a lot from real scientists for two weeks about what I love to learn about and was around people who had similar interests as me.”



How do parents and students respond?

Would you recommend these programs to others?

“Absolutely. When I tell friends and family about what the kids did at the camp, everyone is impressed.”

“Yes. It was great learning experience that he will always remember.”

“Absolutely. This is one of the best programs have found, and allowed the participants to truly enjoy and explore his or her area of interest.

“

“I would recommend it to a friend because it is fun and helps you learn to socialize with others better.”



In Packets

- Institution Information on Education Programs
- List of all IEIs contacted and those who responded
- Crystal Bridges Report printed from
 - <http://educationnext.org/the-educational-value-of-field-trips/>

IEI PROJECT TEAM

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How about a full state review of IEs? We would love to help!

QUESTIONS?

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Vision for the Future of Water Supply in Kansas Education and Public Outreach Coordinating Team Report to the **BLUE RIBBON FUNDING TASK FORCE**



Charge from The Vision for the Future of Water Supply in Kansas:

The success of the Governor's Water Vision depends on changing the culture and the way Kansans think about water. The charge for The Education and Public Outreach Coordinating Team is to develop a multi-phased educational proposal for target audiences of K-12, community leaders and media to promote local conservation decisions. Existing educational efforts, programs and activities will be considered and incorporated appropriately.



Summary of Phase I Action Items:

- Improve Kansans' understanding of water resources.
- Develop a media plan and message maps to promote local engagement in water conservation.
- Design a statewide curriculum for K-12 on water conservation.
- Develop activities within youth organizations to educate and promote water conservation.
- Provide greater information to evaluate the economic impacts of reduced water use.
- Develop working relationships between local and state entities for collaboration on water strategies.
- Coordinate with university researchers to ensure future collaborative research to support the Vision.
- Utilize agricultural education and other youth programs to educate youth about water resources.
- Develop models for inclusion of water conservation into agriculture education curriculum.
- Encourage the development of water related academic career tracks at Regents institutions.



Coordinating Team Process:

- The Education and Public Outreach Coordinating Team, made up of state agency representatives, sought input from a working group of Kansas volunteers with interest and expertise in water-related education and outreach.
- The working group kicked off with a meeting at the Governor's Water Conference in November 2015.
- The working group has met twice and has three more meetings scheduled and will present a proposal at the Governor's Water Conference in November 2016.

The Working Group is divided into 5 subgroup areas in addition to agency Public Information Officers coordination efforts:

1. Community Facilitation and Learning
2. K-12 Curriculum and Career and Technical Education
3. Out-of-Classroom Youth Education (e.g. 4-H, FFA, Scouts, after school programs)
4. Media and Public Outreach Campaigns
5. Career Development



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Outcome: Identified Potential Needs

The Education and Public Outreach Coordinating Team identified potential needs related to the Phase I Action Items identified in the Vision for the Future of Water Supply in Kansas as summarized below. The costs within this document reflect preliminary estimates, and will change as the Working Groups continue to finalize an action plan. Funding for education and outreach may be a result of public/private partnerships and grants; however, success of the *Vision* relies heavily on education at local and state levels and deserves public support.



Statewide Marketing Campaign

Goal: To change the culture and strengthen Kansans' knowledge and awareness of water and water issues. The creation of a statewide marketing campaign would:

- Survey Kansans to gauge awareness and needs.
- Develop a unified and consistent message to change the culture of water awareness.
- Create a variety of message formats for various platforms.
- Identify the best methods of communication.
- Assess success and adapt accordingly throughout the campaign.



Centralized Website and Communications Resources

Goal: To enhance customer service providing access to resources from one central location. All subgroups referenced the need for a website which would serve as a centralized resource point for educational materials to include:

- Curriculum resources library
- Research results
- Economic indicators
- Workshop resources



Youth Education

Goal: To enrich the educational resources for youth in our state both in and out of the classroom. Grant funds to existing entities to design and implement workshops and professional development supporting the statewide water message.

K-12 Education

Combination of in-service professional development and summer workshops and coordinated curriculums related to educational standards. Other elements may include award and recognition programs, Supervised Agriculture Experience (SAE) development and online curriculum access.

Beyond the Classroom Youth Education

Organizations with water-related curriculums and initiatives, e.g. 4-H, FFA, Scouts and other youth development organizations.



Vision for the Future of Water Supply in Kansas
Education and Public Outreach Coordinating Team
Report to the

BLUE RIBBON FUNDING TASK FORCE



Community Facilitation and Learning

Goal: To provide opportunities for Kansans of all ages to increase their awareness of local water issues.

- Workshops for local decision makers on water initiatives held throughout the state.
- Annual meeting of Regents institution water researchers and dissemination of research.
- Creation of a Community Outreach Specialist position.



Career Development

Goal: To support educational pathways to introduce and encourage water-related careers, and to prepare individuals in multiple related career paths to understand water resources.

- Eight regional workshops to facilitate development of partnerships between secondary, post-secondary, business and industry.
- Partnerships will analyze existing academic degree programs leading to water-related careers.
- Evaluate current academic offerings and develop any necessary curriculum.



Overall Estimated Costs

Programs and Activities	Initial Year	Year Two	Annual Ongoing Cost
Statewide Marketing Campaign	\$1,000,000	\$2,000,000	\$2,000,000
Centralized Website and Communications Resources	\$150,000	\$100,000	\$100,000
Youth Education: K-12 and Beyond the Classroom	\$500,000	\$1,500,000	\$1,500,000
Community Facilitation and Learning	\$325,000	\$350,000	\$350,000
Career Development	\$90,000	\$250,000	\$300,000
Total Estimated Costs	\$2,065,000	\$4,200,000	\$4,250,000



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Collaborative Efforts:

Attendees at the working group meetings have represented the following organizations:

- Audubon of Kansas
- Black & Veatch
- Cheney Lake Watershed
- City of Ellis
- City of Lawrence
- City of Manhattan
- City of Salina
- Cloud County Community College
- Cowley County Farm Bureau
- Franklin County Conservation District
- Ft. Scott Community College
- Geary County Conservation District
- Great Plains Nature Center
- Hays School Board
- Jackson County Conservation District
- Jackson Heights High School
- Junction City Middle School
- Kansas Association for Conservation & Environmental Education
- Kansas Biological Survey
- Kansas Center for Agricultural Resources and the Environment
- Kansas Corn Commission
- Kansas Department of Agriculture
- Kansas Department of Health and Environment
- Kansas Department of Wildlife, Parks and Tourism
- Kansas Farm Bureau
- Kansas FFA
- Kansas Foundation for Ag in the Classroom
- Kansas Geological Survey
- Kansas Natural Resource Council
- Kansas State Department of Education
- Kansas Water Authority
- Kansas Water Office
- Kansas City Board of Public Utilities
- Kansas Forest Service
- K-State Department of Communication Studies
- K-State Governmental Relations
- K-State Research and Extension
- K-State Vet Med
- Northwest Technical College
- Pratt Community College
- Regional Advisory Councils
- Rock Springs 4-H Center
- Servi-Tech
- Shawnee County Conservation District
- Sunflower Electric
- Teeter Irrigation
- The Nature Conservatory
- United States Geologic Survey
- University of Kansas
- U.S. Fish and Wildlife Service
- WaterOne
- Westar Energy

Questions?

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