



National Leadership Grants for Museums

Sample Application MG-10-16-0067-16
Project Category: Learning Experiences

Brookfield Zoo

Amount awarded by IMLS:	\$313,686
Amount of cost share:	\$313,703

Attached are the following components excerpted from the original application.

- Abstract
- Narrative
- Schedule of Completion

Please note that the instructions for preparing narratives for FY2017 applications differ from those that guided the preparation of previous applications. Be sure to use the narrative instructions in the FY2017 Notice of Funding Opportunity for the grant program and project category to which you are applying.

ABSTRACT

The Chicago Zoological Society (CZS) is requesting funds to establish NatureStart National Professional Development Network in order to broaden the national access and availability of NatureStart Professional Development (NatureStart PD), an early childhood nature play training program developed in 2010 for informal education professionals in museums, zoos, aquariums, and nature centers around the country. The primary purpose of NatureStart PD is to advance the field of professional informal education through competency-based professional development among educators across multiple informal and formal education institutions who seek to provide early childhood education and family programming around nature and the environment. This project will be led by the CZS, and project partners include The Association of Zoos and Aquariums (AZA); Wildlife Conservation Society; Dallas Zoo; and Greenville Zoo. CZS has gathered experts in the field of early childhood and professional development to serve on an Advisory Council that will provide input and feedback on key components of the project including the design of professional development for the training team and a replicable model for the establishment and program support for regional training sites, as well as other aspects of the plan for sustainability and strategic growth of the NatureStart National Professional Development Network. In addition to representatives from the project partners, the Advisory Council includes Cheryl Bulat, M.Ed.; Amy Laura Dombro, M.S.; Nette Pletcher, M.A.; and Ruth A. Wilson, Ph.D.

The Institute of Museum and Library Services report *Growing Young Minds: How Museums and Libraries Create Young Learners*, highlights early learning as a national priority and presents a call to action for museums of all disciplines to become intentional about supporting early learners and engaging in the early learning professional community (IMLS, 2013). Informal educators come from a wide range of disciplines and backgrounds, and many have not received training specific to early childhood play and learning. The growth of children's programming at informal learning institutions has created an urgent need to train skilled and effective early childhood professionals. The NatureStart National Professional Development Network addresses the national need for professional development targeting informal educators working in museum settings, and, more specifically, those providing early childhood programming based in nature and the environment.

The NatureStart National Professional Development Network builds upon lessons learned over the past five years of providing NatureStart PD and scales up for national impact across the museum education and early childhood education communities. The following activities will take place beginning in October 2016 and ending in March 2019: 1) Develop an Advisory Council to guide the project; 2) Develop training sites and regional training teams in four different regions of the country; 3) Expand access of NatureStart PD to a broader learning community beyond zoos, aquariums, and nature centers; 4) Design a blended learning model for NatureStart PD that includes on-line learning opportunities and regionally-based small group intensive workshops; 5) Develop eight multi-institutional cohorts who will take part in the NatureStart PD program; 6) Pilot a replicable and sustainable model for ongoing national and regional trainings; 7) Implement a comprehensive evaluation plan; and, 8) Provide ongoing communication about the project.

The NatureStart National Professional Development Network will provide a national audience of informal educators and early childhood professionals with the opportunity to develop their own skills and competencies in early childhood nature play programming and to integrate these approaches into their organizational programs and learning environments. The completed project will result in an innovative model for a professional development pathway that currently does not exist and will further the growth and development of an emerging group of early childhood professionals within informal learning environments. This project will test and evaluate an infrastructure and strategy for professional development that will have a broad impact on early childhood education professionals from a wide range of formal and informal learning organizations, disciplines, and geographic locations. The CZS Audience Research Department will manage the evaluation design and implementation for the grant-funded project using a mixed methods strategy to gather information from CZS program staff, regional leaders, professional development participants, and the immediate supervisors of participants. The project evaluation will focus on IMLS Learning Experience performance goals related to training and developing museum and library professionals.

1. STATEMENT OF NEED

1a. What we propose to do: The Chicago Zoological Society (CZS) is requesting funds to establish NatureStart National Professional Development Network in order to broaden the national access and availability of NatureStart Professional Development (NatureStart PD), an early childhood nature play training program developed in 2010 for informal education professionals in museums, zoos, aquariums, and nature centers around the country. The primary purpose of NatureStart PD is to advance the field of professional informal education through competency-based professional development among educators across multiple informal and formal education institutions who seek to provide early childhood education and family programming around nature and the environment.

National NatureStart PD builds on lessons learned over the past five years of providing NatureStart PD and scales up for national impact across the museum education and early childhood education communities by:

- 1) Developing an Advisory Council of early childhood and informal education professionals to guide the project and provide strategic leadership;
- 2) Developing training sites and regional training teams in four different regions of the country. A key benefit of the NatureStart curriculum is the ability for training modules to be replicated by training participants within their own institutions for a multiplier effect and expanded impact;
- 3) Expanding access of NatureStart PD to a broader learning community beyond zoos, aquariums, and nature centers, including Children's Museums, Science Centers, and Cultural Centers, among other museums, as well as early childhood educators in Head Start and other formal early childhood settings;
- 4) Deepening opportunities for practice and reflection of core competencies and professional practices through a learning model that includes on-line learning and regionally-based small group intensives.
- 5) Developing eight multi-institutional cohorts who will take part in the NatureStart PD program and complete *Foundations of Early Childhood Nature Play*. Each cohort will consist of 20 education professionals, for a total of 160 educators from over 100 organizations, including museums and early childhood centers across the country. The eight cohorts will become part of an active and growing alumni group which will continue to function as an on-line professional learning community.
- 6) Piloting a replicable and sustainable model for ongoing regional trainings and developing a comprehensive sustainability plan for all aspects of the project including the Advisory Council, lead trainers, and current and additional regional sites, including continuing education credits or PD credits through AZA (member organizations only) and the State of Illinois Board of Education.
- 7) Implementing a comprehensive evaluation plan utilizing both qualitative and quantitative measures throughout the project to assess the project effectiveness and impact.
- 8) Providing ongoing communication about the project and dissemination of project results through a network of professional associations and through social media.

1b. Need, problem, or challenge our project will address: The IMLS report *Growing Young Minds: How Museums and Libraries Create Young Learners*, highlights early learning as a national priority and presents a call to action for museums of all disciplines to become intentional about supporting early learners and engaging in the early learning professional community (IMLS, 2013). Informal educators come from a wide range of disciplines and backgrounds, and many have not received training specific to early childhood play and learning. The growth of children's programming at informal learning institutions has created an urgent need to train skilled and effective early childhood professionals. The NatureStart PD initiative addresses the national need for professional development targeting informal educators working in museum settings, and, more specifically, those providing early childhood programming based in nature and the environment.

Nature play and exploration is an important component of child development, and research emphasizes the vital role that direct contact with nature has for children's physical, cognitive, emotional, and social health and development (Kellert, 2005). Despite this, there is no other time in human history where so many children are separated from direct experiences with nature (Louv, 2001). More than 80% of all Americans reside in cities and urbanized areas; up to 75% of children in industrialized countries live in cities; and in the developing world, the majority of children will be living in an urban area in the next few decades (Malone, 2002). For many of these urban children and their families, nature experiences will be mediated through the zoo, aquarium, and

museum communities; thus, early childhood educators in informal settings have enormous potential to provide vital opportunities for children and families to explore nature through play and first-hand experiences.

The purpose of the NatureStart Professional Development Network is to benefit young children and their families through the professional development of educators across informal education institutions who provide young children and families with programs, services, and learning environments. At the foundation is the need of children to have quality nature experiences as part of their childhood. As childhood becomes increasingly urbanized, childhood nature experiences require planning and facilitation on the part of educators. NatureStart PD seeks to develop educators' expertise in providing high quality childhood nature experiences through programs at their institutions.

Dr. Louise Chawla, in her conservation psychology research on significant lifespan experiences for conservation professionals, suggests that adults with strong relationships with nature attribute their commitment to the environment to time spent exploring nature in wild or semi-wild places (which can include urban experiences of nature) and an adult who shared their passion and enthusiasm (Chawla, 2007). This is one of the underlying foundations of family nature play programming supported by the skills, competencies, and practices developed in NatureStart PD. The need for a new type of early childhood professional is also clearly articulated in the Kids Dig Dirt green paper published by the Association of Children's Museums- one that is "based on current museum best practices, but expanded to encompass how children learn and play in nature" (ACM, 2008, p.7). Through CZS' NatureStart PD, educators can develop the expertise to provide high quality childhood nature experiences through their institutions and programs.

NatureStart Professional Development – Background: In January 2010, CZS conducted a formal needs assessment through the Association of Zoos and Aquariums (AZA), which certifies over 220 institutions, and Chicago Wilderness, an alliance of over 200 public and private organizations. Results from the survey showed that 97% of organizations regularly provide programs for children 0 to five, and that 89% reported a growing need for professional development in early childhood. Based on the needs assessment results, CZS developed NatureStart, a professional development program for informal educators through a grant from IMLS. The NatureStart curriculum incorporates theory and practice for learning, and skill-building activities designed to move participants to a new level of appreciation for the science of early childhood education and the importance of the complexity of the learning process for the young child. Program content focuses on developing an understanding of the process of learning, for the professionals and for young children. In addition, it teaches the professionals how to create and facilitate inquiry-based play and learning experiences within their unique, informal-learning settings.

Evaluation of NatureStart PD shows growth in participants' knowledge and skills, as well as their enthusiasm to implement new ideas. Among participants in a learning group drawn from Chicago Wilderness organizations, most reported increased confidence to help young children connect with nature (85% much or very much gain), demonstrate and model nature play skills for parents (71% much or very much gain), implement a learner-centered approach to training informal educators (100% much or very much gain), and create a strong foundation for nature play at their organization (100% much or very much gain). Further, our evaluation demonstrated an increase in professional competencies among zoo, aquarium, and nature center educators in providing developmentally appropriate, nature-play enriched science programming for young children and their families. Almost all Chicago Wilderness participants (91%) reported redesigning aspects of programs during their NatureStart training; most also indicated designing new programs (82%) and talking more about the needs of their youngest guests (92%). Many were training internal staff (73%), redesigning program facilitation strategies (73%), and increasing use of natural indoor and outdoor play areas (64%).

NatureStart has garnered significant national attention including recognition by the White House as a Champion of Change program. It is now certified as a course offered through AZA, and was the impetus for the first Play Site established at a U.S. National Park (the Indiana Dunes National Lakeshore, whose staff participated in the IMLS funded NatureStart training).

In 2014, with support of an IMLS Museums for America grant, CZS established NatureStart Network, a Chicago based early learning network that includes both environmental and early childhood educators in order

to increase the nature play and exploration opportunities for urban children and families. The Chicago NatureStart Network currently consists of 80 education professionals, including informal educators from the Cook County Forest Preserves (FPD) and formal early childhood educators from the Mary Crane Centers and El Valor (both of which operate Head Start programs in Chicago's underserved communities). Two months after the first phase of training, participants reported starting to discuss the needs of very young audiences/students (50% have done, 46% are planning), provide more access to natural resources indoors (43% have done, 43% are planning), and design new indoor nature play spaces (38% have done, 19% are planning). While only 23% have provided more access to outdoor play areas so far, another 64% indicated that they are planning to do this.

CZS has a long history as an established international leader in providing developmentally appropriate nature education programs for children, which are grounded by research in the field of conservation psychology, started at Brookfield Zoo. Conservation psychology seeks to understand the way humans bond with nature and supports the role of early childhood nature experiences in the development of emotional connections to nature, environmental identity, value formation and the development of an environmental ethic (Saunders, 2003). In 2001, CZS opened the *Hamill Family Play Zoo* (HFPZ) as a model of applied conservation psychology, combining research from the fields of environmental psychology, child development and environmental education to provide quality nature play programs that help young children and their families develop emotional bonds with the natural world. HFPZ and our early childhood programs and exhibits were highlighted as a case example in the IMLS report, *Growing Young Minds*.

1c. Who and what will benefit from our project: The NatureStart National Professional Development Network will provide a national audience of informal educators and early childhood professionals with the opportunity to develop their own skills and competencies in early childhood nature play programming and to integrate these approaches into their organizational programs and learning environments. The development of the National Professional Development Network will be guided by an Advisory Council of experts in early childhood professional development and professional development leaders within the zoo and aquarium field. The Advisory Council members will provide input and insight regarding the design and implementation of the blended learning model, as well as the professional development being provided to the multi-organizational team of trainers. An educational leader from each zoo and aquarium that is providing the regional training will also be part of the Advisory Council. Their organizations were recruited to participate in this pilot project based on past participation in NatureStart training and demonstrated commitment and abilities in putting the resulting skills, competencies, and practices into place within their programs and institutions.

Four regional training sites will be established through the development of a team of Lead NatureStart Trainers within partner organizations who will be supported in their own ongoing development as trainers and in their own development of regional NatureStart Networks. The Lead NatureStart Trainers will participate in a professional learning network of their own in which they are able to maintain ongoing communication with each other, with CZS project leaders, with experienced NatureStart trainers from CZS, and receive input from the NatureStart Advisory Council.

There will be eight professional development sessions in the National NatureStart PD Network project. Each session includes online learning and practices that focus on workplace implementation, as well as an in-person, small-group intensive workshops at each regional site. The program will be implemented at each of four regional training centers located in Brookfield, IL; Dallas, TX; Greenville, SC; and Bronx, NY. Each regional training center will be operated in partnership with CZS. Over the course of the project, each regional site will receive professional development for their training team and engage in peer learning and support as part of a professional learning community with CZS and all training partners. Each regional center will conduct two training sessions; first to pilot the blended learning model and develop their own capacity as a training team and training center, and second to pilot a fee-based version of the program that will contribute to ongoing program sustainability.

Through the four regional training centers, CZS anticipates reaching a minimum of 160 unique participants who will complete the NatureStart PD in cohorts of 20 to 25 people over the course of the 2.5 year project. The small group model allows for collaborative, peer-based learning, and the cohort serves as its own

learning community during the course. Additionally, all 160 program participants will become part of an active and growing alumni group, which functions as an online professional learning community and will provide support for the participants both during and after the NatureStart PD program. In addition, a core component of the NatureStart curriculum is that training modules can be replicated by training participants within their own institutions for a multiplier effect and expanded impact.

Throughout the project, there will be an emphasis on sustainability and replicability. The process for serving as a member of the Advisory Council will be formalized, with terms of service and selection process, so that a new Advisory Council can be put in place upon completion of the grant. A selection and approval process for Lead NatureStart Trainers will be put into place with a process and terms for maintaining training status and for providing NatureStart training to the public. The process for adding new regional training sites will be further defined and included in the overall sustainability plan. In addition, processes by which participants in the NatureStart training may receive continuing education credits, college credit, or other professional development credits will be formalized. Finally, a model for cost sharing and revenue sharing between CZS and organizations leading regional training sites will be defined.

1d. How the project will address the goals of the National Leadership Grants for Museums Program: The IMLS Learning Experiences project category supports the unique ability of museums to empower people of all ages through experiential learning and discovery. The NatureStart National Professional Development Network aligns with the project goal of developing and implementing training/professional development programs, tools, and resources that build the knowledge, skills, and abilities of museum staff and educators across multiple institutions that serve an early childhood population. The NatureStart professional development initiatives was successfully developed through a previous IMLS grant, and we received additional IMLS funding in 2014 to implement a multidisciplinary NatureStart training. In addition, the program is being implemented within an underserved Chicago community as part of a National Science Foundation grant, and we are developing a degree-granting program for students majoring in early childhood education in partnership with Morton College, which will initially be implemented in the Chicago region and then expanded in future years through a national network of community colleges called ACCESS. NatureStart is also currently offered through the AZA professional development school and is a required course within the AZA Conservation Education Certificate. The current proposal for the development of a NatureStart National Professional Development Network builds upon the knowledge and successes of IMLS grants and leverages the knowledge and capacity built through those two IMLS supported projects to expand the collaborations toward national leadership and impact empowering people of all ages through experiential learning and discovery.

2. IMPACT

2a. IMLS Performance Measure Statements, Collecting and Reporting: The project evaluation will focus on IMLS Learning Experience performance goals related to training and developing museum and library professionals. More specifically, the CZS Audience Research Department will assess changes in participants' understanding of child development and how children learn through exploration of the natural world, interest in developing play-based opportunities (activities, spaces) to connect children and families with nature, and confidence to plan and implement nature play experiences. Changes in participant understanding, interest, and confidence will be reported annually, along with documentation of number of participants, number of responses to the online evaluation forms, and number of evaluation items that are answered and left blank. Further description of evaluation activities is provided in section 3a.

2b. Project Performance Goals: With this project, the NatureStart National Professional Development Network will continue to expand its learning community of early childhood educators. Specific goals are to:

- *Establish regional NatureStart PD sites.* We will work with four zoos across the U.S. to develop a foundation to offer regional NatureStart professional development. This will include recruiting and mentoring leaders to facilitate the professional development, creating a blended professional development curriculum that can be implemented online and in-person, and pilot testing the model with informal and formal educators at the four regional sites.

- *Change educator practice.* As a result of their NatureStart PD experiences, educators will develop understanding, interest, and confidence to plan and implement nature play within their organizations. Building on these gains, participants will change their practices in ways that forge new connections between children, their families, and nature.
- *Expand the national professional learning community for early childhood professionals.* Educators who take part in the professional development will join a community of NatureStart alumni who continue to interact online as advocates and practitioners of early childhood nature play experiences. To further enhance community engagement, dissemination of project information will be shared through a project web site, social media, and academic presentations.
- *Create a sustainable, scalable, and replicable model of NatureStart PD.* We will test the implementation of a fee-based NatureStart PD that covers the cost of program implementation in regions across the U.S.

2c. Changes in Knowledge, Skills, Behaviors, or Attitudes: NatureStart strives to develop a skilled and passionate community of early childhood professionals. Specific gains in knowledge, interest, and confidence as well as changes in educator practice are described below and will be documented through evaluation activities.

Professional development for regional leaders. Two leaders per partner site will be mentored by CZS staff to facilitate professional development. As a result of this,

- 100% of Lead NatureStart Trainers will understand how to create an environment that promotes adult learning, techniques to help adult learners develop new skills, and the skills required to be a good mentor to adult learners.
- 100% of Lead NatureStart Trainers will feel confident to create a cooperative learning environment for adults, model nature play skills for adult learners, and provide constructive feedback to adult learners at they practice nature play skills.

Professional development for educators. A total of 160 educators will take part in regional professional development. As a result of this,

- 90% of participants will gain a better understanding of child development, how young children learn through exploration of the natural world, how adults can guide learning through nature play, and the benefits of combining positive play experiences with nature.
- 90% of participants will express interest in helping young children and families connect with nature, creating multi-sensory learning experiences, and designing engaging indoor and outdoor nature play opportunities.
- 80% of participants will feel confident to create a strong foundation for nature play at their organizations through planning and implementing nature play experiences.
- 80% of participants will implement actions guided by the NatureStart competencies and change their practice to build connections between children, their families, and nature.

Professional learning community. Half (50%) of participants will engage in ongoing virtual discussion as part of a professional learning community following their completion of the professional development.

2d. Project Results of Value to the Field: The NatureStart Professional Development Network provides an ongoing Advisory Council, professional development of Lead NatureStart Trainers, professional support for regional NatureStart Training sites, and increased accessibility and expansion of the highly successful NatureStart PD program that is competency based and grounded in a collaborative professional learning community approach. The completed project will result in an innovative model for a professional development pathway that currently does not exist and will further the growth and development of an emerging group of early childhood professionals within informal learning environments. This project will test and evaluate an infrastructure and strategy for professional development that will have a broad impact on early childhood education professionals from a wide range of formal and informal learning organizations, disciplines, and geographic locations.

2e. How we will Sustain the Benefits of the Project: CZS has a strong commitment to professional development in conservation science, animal care and welfare, field conservation, and conservation education including early childhood education, and our current Strategic Plan includes a goal to develop a comprehensive PD program. NatureStart PD is an important component of this strategic direction and long-term investment, and each component of this project will be developed with sustainability in mind. The NatureStart Advisory Council will serve as a pilot for an ongoing advisory group, which includes terms of service and continues beyond the life of the grant. A process for identifying, training, and approving NatureStart Trainers will be established and will continue beyond the grant-funded project. The criteria and process for becoming a training partner and serving as a regional training site will be established and defined. We anticipate that the NatureStart PD, including course materials and access to the NatureStart Network and NatureStart training team will be offered as a fee-based program that covers basic costs of training sites and positions the program for sustainable growth within each region. CZS will assess the feasibility of a fee-based professional development program, including fee structure, and a business plan will be developed. In addition, the development of the in-person/online blended training model will enable a wide variety of future training collaborations hosted in each region.

3. PROJECT DESIGN

3a. Project Activities, Evaluation and Performance Measures: The project work plan involves 1) partnership development with project leaders; 2) curriculum development with course materials and resources organized within an online Learning Content Management System (LCMS) for delivery of a blended learning approach for professional development of lead trainers and PD program participants; 3) coordination and advance preparations with four regional training sites, professional development and ongoing support for the training team, recruitment of PD program participants, and implementation; and 4) Ongoing evaluation, dissemination and communication and development of an ongoing business and sustainability plan to ensure continued implementation and growth of the Network and of NatureStart PD. The following activities will take place beginning in October 2016 and ending in March 2019.

Advisory Council: CZS has gathered experts in the field of early childhood and professional development to serve on an Advisory Council. The group will provide input and feedback on key components of the project including the design of professional development for the training team and a replicable model for the establishment and program support for regional training sites, as well as other aspects of the plan for sustainability and strategic growth of the NatureStart Professional Development Network. In addition to representatives from the Regional Training Sites, the Advisory Council includes: Cheryl Bulat, M.Ed.; Amy Laura Dombro, M.S.; Nette Pletcher, M.A.; and, Ruth A. Wilson, Ph.D. (see Supportingdoc1 and Supportingdoc2)

Training Team Development: Professional development for six leaders at the three partner sites will consist of a blended professional development model including online learning, on-site learning, peer feedback and reflection, and ongoing coaching and mentoring from CZS around adult learning, training facilitation skills, and theoretical framework from child development and conservation psychology underlying the competency-based learning utilized in the NatureStart training (see Supportingdoc4-6). The eight trainers will function as a professional learning network and have ongoing communication with each other in order to continue to reflect upon and strengthen their own practices as training professionals. CZS will lead the professional development programming for the training team with input from the Advisory Council.

Development of a Blended Learning Model for Curriculum Delivery: The NatureStart course centers around a competency-based learning model. Course content and related activities reflect relevant competencies from fields of early childhood education, play, and informal learning. The core content centers on cooperative skill-building activities and evidence-based practices. The current NatureStart PD curriculum and content (taught in a face-to-face environment) will need to be adapted in a blended learning model (face-to-face and on line) that enables participants to explore key ideas and strategies through foundational reading materials and resources, direct experience in worksite competency practices, ongoing reflective practices with peers, action plans for

ongoing professional development and program design, active participation in computer supported learning community, and small-group, skill-building intensive sessions.

The course will include on line and classroom instruction; with approximately 15 hours of on-site content at regional training centers, and approximately 15 hours of online content to be posted monthly and accessed at participants' convenience. In addition there will be monthly scheduled virtual meetings that will focus on collaborative learning tasks and reflection on workplace practices. For example, NatureStart participants are introduced to the professional practice of conducting observations of children in play environments which is practiced in formal teacher training programs in classroom settings, but is not often practiced by informal educators or by any educators outside classroom settings in natural play environments. These observations also have rarely included interactions of children and families. The on-line learning environment will enable participants to discuss and reflect on these observations on an on-going basis and continue to strengthen the skills associated with this task.

The course also includes one-day, small-group skill-building in-person intensive sessions at the regional training sites. The intensive sessions provide participants with opportunities to actively practice new skills and receive coaching, mentoring, and feedback from the trainers, as well as other participants. Shared learning experiences provide a safe environment for practicing skills prior to implementation and are an essential component of the professional development process.

Upon completion of the NatureStart program, participants will demonstrate proficiency in the following eight professional competencies: 1) To plan and implement nature play activities that are sensitive to and reflective of the individual and cultural characteristics of young children and their families; 2) To plan and implement nature play activities that help young children develop empathy for living things; 3) To invite active engagement with the natural world through enhancing, enriching, and facilitating sensory-rich indoor and outdoor playspaces; 4) To interact with young children (verbally and nonverbally) in a positive social environment while supporting their play, creativity, and learning; 5) To engage parents and other family members in connecting children to nature; 6) To engage in reflection, open inquiry, and skill building activities for their work in nature play with young children and their families and caregivers; 7) To develop a plan for establishing or strengthening a family nature play program in their institution that is relevant to its geographical, ecological, physical, and social circumstances and has built-in supports for sustainability; and, 8) To actively participate, as a learner and contributor, in a professional learning community focusing on developing and strengthening nature play opportunities for children and families.

The NatureStart PD curriculum introduces an overview of the core professional competencies, with a broad overview of early childhood development, learning, and play. Throughout this course, participants develop advanced skills as observers and listeners of children. There is a specific focus on professional practices in verbal and non-verbal communication with children and families, play facilitation, and space planning for nature play environments. Each participant develops a professional portfolio for review along with an ongoing individualized professional development plan based on an assessment of their own strengths and own needs within the eight core competencies.

Online Infrastructure: Learning Content Management System: A key component to the successful scalability of NatureStart is the development and implementation of an on line Learning Content Management System (LCMS). The LCMS will provide a multi-user environment that allows for the types of frequent and on-going collaboration and communication that will be central to the blended learning approach of NatureStart National PD. We have identified Canvas, by the company Infrastructure, as our preferred LCMS. Canvas offers the ability to access course content on mobile devices; allows our training team to manage multiple course calendars online over multiple years; and, acts as a central repository where the NatureStart training team can create and store e-learning content that can be reused and repurposed over multiple trainings, allowing for rapid assembly of customized content that can be adjusted and updated based on the feedback and unique experiences of NatureStart training participants. Additionally, Canvas provides virtual spaces where NatureStart participants can participate in discussion forums, live chats, and live web conferences, as well as post photos and videos of their projects for discussion and reflection.

Recruitment: Our target audience is a minimum of 160 educators in informal and formal education institutions who either provide or are interested in providing nature based programs and experiences for young children and families in their institutions. Information and an application for NatureStart PD will be distributed through state, regional, and national museum associations, in addition to environmental education organizations, and early childhood education associations including but not limited to Alliance of American Museums (AAM), National Association of Environmental Education (NAAEE), Association of Children’s Museums (ACM), Children and Nature Network (C&NN), National Association for Interpretation (NAI), as well as the Association of Zoos and Aquariums (AZA), National Head Start Association (NHSA), National Association for the Education of Young Children (NAEYC), and Associate Degree Early Childhood Teacher Educators (ACCESS).

By including both formal and informal educators in each training cohort, and involving early childhood education professionals involved with Head Start and community college programs, we hope to reach a range of educational disciplines and organizations, as well as be inclusive of a range of ethnic, cultural, and economic diversity. Our goal is to recruit participants that represent a diversity of museum types and disciplines, and a blend of formal and informal educators, with two trainings per each of the regional sites. Participants will be notified of their acceptance, assigned region, and training start date.

Regional Training Sites: NatureStart National PD will be offered at four regional training locations through: 1) Brookfield Zoo/Chicago Zoological Society in Brookfield, Illinois; 2) Wildlife Conservation Society in Bronx, New York; 3) Dallas Zoo in Dallas, Texas, and 4) Greenville Zoo in Greenville, South Carolina. The locations were selected to offer convenient, easily-accessed hubs for participants across a wide range of North America. In addition, each partner organization has participated in the NatureStart training and has active alumni with strong, demonstrated commitment to their own early childhood programs and initiatives. Each regional training site will participate in professional development for their training team and will partner with CZS in providing delivery of the NatureStart training in their region with CZS providing ongoing on-line support to training participants and to the training team.

Pilot Training I: Test of Blended Learning Model: Each site will conduct a pilot training to test the blended learning model and to further develop the training skills and capacity of each site. Interested participants will complete an application stating their willingness to participate in all aspects of this project, including evaluation. All applications received will be reviewed by the CZS NatureStart training team, and will be prioritized by matrix that accounts for training needs, demonstrated investment in nature-based and play based programs for children and families, and institutional support for training involvement and implementation of action plans. During this grant-funded pilot, all training will be provided free-of-charge to the participants; however, participants would be asked to cover their own meals, housing, and transportation costs. We have utilized similar recruitment methods and application processes at CZS and did not experience any difficulties in filling our NatureStart training to capacity.

Pilot Training II: Test of Fee-based Training Model: A second pilot will use an on-line registration system and fee-based program model to test sustainability beyond the grant period. For this pilot, we will strive to develop a cost effective program delivery and will benchmark, for comparison purposes, registration fees of other professional development programs (e.g. the AZA professional cost of \$950/person currently charged for one-week NatureStart training at CZS). In addition, we will utilize input from our participants and Advisory Council to reach early childhood educators and informal educators from culturally diverse and economically diverse backgrounds. Plans for sustainability and growth will be incorporated into a written multi-year strategic plan by the end of the project period. CZS will develop this plan with input and feedback from the Advisory Council, Regional Training partners, and lead NatureStart trainers.

The CZS Audience Research Department will manage the evaluation design and implementation for NatureStart using a mixed methods strategy to gather information from CZS program staff, regional leaders, professional development participants, and the immediate supervisors of participants. All protocols and instruments will be submitted for IRB review.

Advisory Council feedback. The evaluation team will take part in all Advisory Council meetings to summarize group discussion about the development and implementation of both online and onsite components, as well as

the project's strengths and barriers. In addition to meeting documentation, once a year the evaluation team will prepare questions that the Advisory Council will be asked to consider in order to provide feedback on project impact and improvement. These questions will focus on advisors perceptions of the project's strengths and weaknesses, any impact they have seen, reflections on their role, and thoughts on improving project reach and sustainability.

Training Team Leader feedback. To assess the training process and effectiveness of the blended learning model, the evaluation team will gather feedback from the training team leaders through online forms and interviews. Leaders will be asked to complete an online evaluation form after each onsite training they facilitate with participants. We will also ask the two leaders from each site to take part in a phone interview following completion of each of the two professional development sessions. The focus of leader feedback will be on their understanding of adult learning, their confidence to create an effective learning environment, and their perception of the overall professional development process. To measure the effectiveness of the process we will ask leaders to reflect on participant reaction to the curriculum, engagement with online learning components, barriers to implementation, and suggestions for improvement.

Participant feedback. Regional professional development participants will be asked to provide feedback on their experiences as well as on their personal growth. Participants will be invited to complete an online evaluation form prior to the start of the professional development, immediately following each onsite training, and two months following the end of the professional development.

- Prior to beginning the courses, participants will document their expectations for the experience and their background related to early childhood nature play.
- Immediately following each onsite training, participants will assess the curriculum, the professional development experience, and self-report on changes in their knowledge, interest, and confidence.
- Two months following the training, participants will report on the extent to which they developed new competencies, any changes in their practice, and any improvements they have been able to encourage within their institutions. Participants will also be asked to provide feedback on the online platform, their feeling of community with fellow learners, and the overall blended learning model.

Supervisor feedback. Each participants' supervisor will be invited to complete an online evaluation form at the beginning and end of the professional development session. Prior to the session, supervisors will report on their expectations and any outcomes they want to see as a result of their staff's participation in NatureStart. After the session, supervisors will share any changes they observe in their staff's competencies and practices. They will also report whether any institutional changes take place as a result of staff participation.

Additional implementation assessment. To further document participant engagement and effectiveness of the blended learning model, evaluation staff will review discussions that take place as part of the online learning component, conversations that take place during virtual events and through social media, and materials that participants upload as part of their ePortfolio.

CZS program staff feedback. To obtain feedback from CZS program staff, the evaluation team will conduct quarterly interviews. Interviews will focus on their mentoring experiences, questions and comments they have received from the regional leaders, their observations on implementation of the onsite and online components, challenges and lessons learned, and strategies for planning program sustainability.

Dissemination documentation. All communication materials, presentations, and publications developed during the grant period will be documented by program staff and shared with the evaluation team.

3b. Project Personnel: David Becker, CZS Senior Manager of Learning Experiences, will serve as PI, allocating 15% of his time in both years. He will provide project supervision and management, content development and oversight, as well as content delivery to trainers and participants. Alejandro Grajal, Ph.D., CZS Senior Vice President of Conservation, Education and Training, will allocate 2% of his time and will ensure that the project integrates with long-range strategic plans and provide departmental oversight and direction. Marilyn Brink, CZS Manager of Early Childhood and Professional Development, will allocate 80% of her time, leading the development of the training team within the regional training partnerships and

providing, content delivery to trainers, partners, and participants. Jennifer Matiasek, CZS Research Program Coordinator, will allocate 5% of her time to develop and implement participant and supervisor evaluations, conduct the online discussion content analysis, monitor assessment of the ePortfolio assignments, and gather stakeholder feedback. Finally, Lisa Kelly, Ph.D., CZS Education Research Scientist, will allocate 5% of her time to serve as an internal consultant around training design and implementation, as well as the liaison between this and other CZS professional development initiatives. Project Partners include The Association of Zoos and Aquariums (AZA); Wildlife Conservation Society; Dallas Zoo; and Greenville Zoo. (See Supportingdoc1)

3c. Project Timeline: NatureStart National Professional Development Network will be a 2.5 year project beginning October 1, 2016 and concluding May 31, 2019. The Advisory Council will be launched in the Fall 2016, and will meet approximately every six months throughout the project including Spring and Fall 2017, Spring 2018, Fall 2018, Spring 2019. The LCMS will be purchased in October 2016, with on-line content available for both trainers and training participants available by March 2017. Professional development content for the training team will begin in October 2016, with on-line content available on the LCMS by March of 2017. Concurrently, the NatureStart curriculum will be adapted to a blended learning format beginning in October 2016, with training content available by March 2017. Recruitment for the Pilot training will begin in January 2017 and the first training will begin in March 2017. An on-site training session will be conducted at each of the regional training sites - Brookfield, Bronx, Dallas, and Greenville, with two onsite trainings in April 2017 and two in May 2017. Pilot trainings will begin in April 2017 and be complete by November 2017. Planning for a pilot of fee-based NatureStart PD programs will begin in September 2017 and conclude in November 2017. Recruitment for fee-based programs will begin in December 2017 and continue through March 2018. The pilot or fee-based program will begin in March 2018 and be complete in October 2018. Strategic planning, including a business plan, will begin in November 2018 and be completed by April 2019. Additional sustainability planning will be incorporated and integrated throughout the project, i.e., developing formal systems for the ongoing recruitment and renewal of the Advisory Council, recruitment of new trainers, development of new regional training sites, and development and delivery of new blended-learning training content. Evaluation will also be ongoing throughout the project.

3d. Financial, Personnel and Other Resources needed: CZS is requesting 272,461 over three years for this project. The request includes salaries and benefits over three years for Marilyn Brink (80% FTE), Cory Wilcox (5% FTE), and Jennifer Matiasek (5% FTE). We are also requesting all program expenses related to travel, supplies, conference registration, software and hardware costs, and 1.5% indirect cost. Cost shares will be provided by CZS for the salaries and benefits of David Becker (15% FTE), Lisa Kelly (5% FTE), and Alejandro Grajal (2% FTE). Finally, CZS has a federally negotiated indirect cost rate of 73.61%, and we will be contributing 98.5 of indirect costs as cost share in all three years.

3e. Tracking progress toward performance goals and outcomes: Information from each of the described evaluation components will be used to refine the curriculum content and professional development approach. The evaluation team will meet quarterly with CZS program staff to provide updates on feedback from leadership and professional development participants as well as to report progress toward stated goals and outcomes gleaned from implementation assessment. If any issues are identified between reporting periods, all project stakeholders will communicate about how to address the issues and revisions will be made as needed.

3f. Sharing project results: An essential component of NatureStart professional development programs is ongoing communication with training participants and with the field at large. A project blog, Facebook page (facebook.com/NatureStart.czs), web page (CZS.org/NatureStart), and other available social networks and media (e.g., [Twitter@NatureStart](https://twitter.com/NatureStart)) will be utilized to disseminate information to and interact with the field. Information related to project process as it occurs in real time will be communicated, as well as project results. Evaluation results, and the project's final report will be posted on InformalScience.org.

