

D'YOUVILLE COLLEGE

The American History and Civics Education-National Activities Grant Program

**Program Narrative
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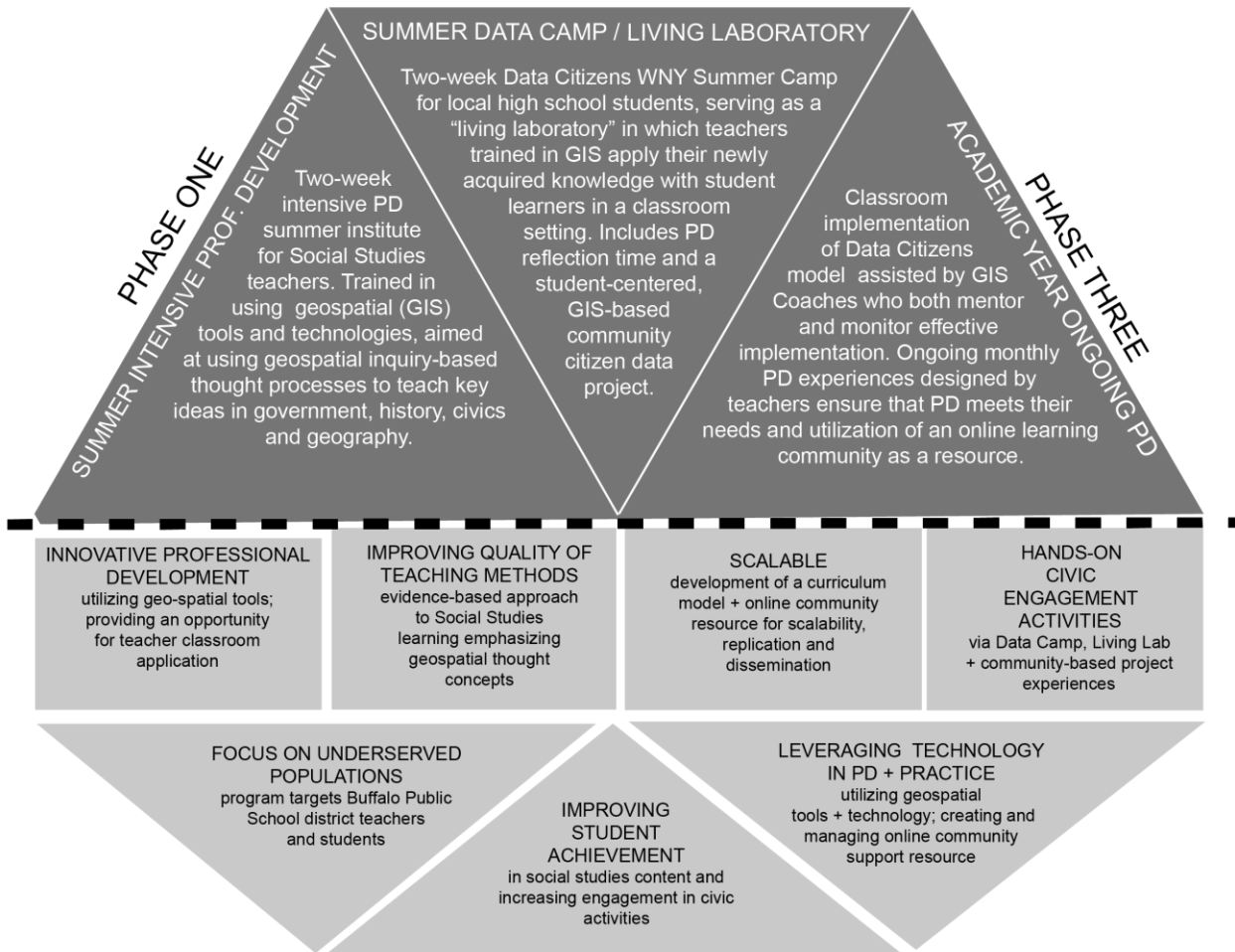
A. QUALITY OF THE PROJECT DESIGN

Project Description

DATA CITIZENS WESTERN NEW YORK (WNY) is an innovative teacher professional development model designed to support geography, civics, and government teachers and their students as they explore global historical questions using geo-spatial data to analyze and address local civic issues in teacher led civic engagement projects. We frame this work as preparation for “spatial citizenship” in the 21st century (Schulze, Gryl, and Kanwischer 2015; Gryl and Jekel 2012). Innovative instructional techniques using geospatial (GIS) tools emphasize the use of available technologies to explore key ideas in history and civics within geographic-spatial contexts and ultimately increase civic understandings among secondary school students. We see this innovative initiative as direct preparation of both teachers and students for upcoming changes to New York State testing in Global History and Geography II. Phase I of DATA CITIZENS WNY involves a two-week intensive SUMMER INSTITUTE for teachers. Phase II involves a two-week SUMMER CAMP for local high school students which serves as a “living laboratory” in which teachers apply their newly acquired knowledge with student learners, and complete a community-based citizen data project. This model presents unique opportunities to address gaps in teacher knowledge about applied geography as well as model engaged citizenship for students. Phase III takes place during the academic year, when teachers enact acquired curriculum modules in their own classrooms, assisted by GIS coaches who both mentor and monitor effective implementation. Ongoing monthly professional development experiences designed by teachers themselves ensure that professional development meets their needs while educators enact curriculum modules and create an applied geo-spatial implementation project in their own communities.

OBJECTIVE: To improve teaching in geography, civics and government through innovative professional development to (1) increase the quality of Social Studies and Geography pedagogy using GIS and (2) increase student engagement using GIS.

**DATA CITIZENS WNY
PROFESSIONAL DEVELOPMENT MODEL
PHASE TWO**



Project Design.

Absolute Priority 1—Innovative Instruction or Professional Development in American History, Civics and Government, and Geography

DATA CITIZENS WNY addresses **Absolute Priority 1** of the American History and Civics Education-National Activities grant as it will design, implement, and evaluate an innovative professional development model for Civics and Geography educators that will improve teacher competence in each content area, providing teachers with technological skills needed to prepare tomorrow’s spatial citizens. The project will also improve student engagement in civics education, and has the potential to raise test scores on the new Global History and Geography II NYS Regents Exam. The project will focus on underserved populations, as the majority of the teacher and student participants will hail from the Buffalo Public School District, which serves almost 40,000 students in 55 public schools of whom 57% are economically disadvantaged, 77% are eligible for free or reduced lunch, 33% are impoverished, and 76% are minority (Fast Facts, 2017).

Competitive Preference Priorities 1a, 1b, & 1d

DATA CITIZENS WNY addresses **Competitive Preference Priority 1a** with its focus on training teachers to utilize cloud-based SaaS GIS platforms (Software as a Service Geographic Information Systems) to increase usage among teachers and students of high quality and accessible tools in a way that applies directly to curricular mandates. The program addresses **Competitive Preference 1b** in that it requires teachers and students to meet important curricular demands from the College, Career and Civic Life (C3) Framework for Social Studies Standards that require students to “build critical thinking, problem solving, and participatory skills to become engaged citizens.” DATA CITIZENS WNY participants will do this by investigating big historical ideas, by exploring current social issues, and by actually participating in impactful

civic activities. The program addresses **Competitive Preference 1d** in helping teachers to create powerful instructional experiences utilizing open source data (OER) to collect, analyze, and create “big data” visualizations that cultivate spatial perspectives on the world. “A spatial perspective provides learners with a distinct advantage that is found in no other curricular source and is vital to the development of effective citizens” (Heffron & Downs 2012 as cited in Hinde 2015). In developing and implementing this initiative, DATA CITIZENS WNY fulfills the mandates of both the Absolute and Competitive priorities outlined above.

(i) The extent to which the proposed project represents an exceptional approach to the priority or priorities established for the competition.

Context for the Project

Since 1979 New York State has required Regents exams in all major subjects for graduation. Historically, Global History and Geography represents the “most difficult and most frequently failed” Regents examination of all NYS exams (Ried 2012; “Fears Regents Exam Will Kill Grad Rates” 2012). New York State Global History and Geography teachers will need extensive support as they transition to the new Regents Exam in Global History and Geography II, due for first administration in June 2019. Students take this Regents exam to assess knowledge from Grade 10 social studies. According to Engage NY, the official website of the New York State Education Department related to their Regents reform agenda, the Grade 10 curriculum is “mapped onto the recently revised NYS K-12 Social Studies Framework, and focuses on the key ideas of industrialization, nationalism, imperialism, conflict, technology, and the interconnectedness of the world through a majority of its units. Such key ideas targeting global issues call for “a more thematic approach” requiring teachers to engage students in inquiry experiences that call upon spatial thinking and the use of technology to evaluate real world

problems (Engage 2017). These learning experiences prepare students to adopt the spatial citizenship roles required for life in the 21st century.

The five counties encompassed by the Western New York region have many challenges. Recently identified by the Robert Wood Johnson Foundation as “least healthy” among all New York State counties on a number of indicators (“Erie County, New York” 2017), WNY’s children face economic and sociological challenges to their achievement. Buffalo is the second largest city in New York State, with a total population of 258,066 residents. Median household income is \$32,509 a year in Buffalo, almost half the New York State average, placing one in three area residents below the poverty line (33%). In the five county WNY region 12.9% of residents live below the poverty line and 54% percent of WNY students are economically disadvantaged. Research indicates that low levels of civic participation tend to follow racial and economic demographic patterns in that, persons with low income, African Americans, people of Hispanic descent, pan-Asian Americans, and recent immigrants have all been found to have extremely low levels of civic engagement. However, it is well established that attempts to improve the academic experiences of economically or sociologically marginalized students with the intervention of high quality academic experiences can be extremely effective at impacting academic outcomes. (Peske and Haycock 2006; Borman and Kimball 2017).

Participants

1.) Teachers - Each year 15 teachers will be admitted to the program (45 over three years). The cycle of professional development begins in the summer with a 2-week intensive DATA CITIZENS Summer Institute (Phase I), during which teachers will learn to use SaaS GIS tools and guided through inquiry-based experiences, engage in field experiences involving GIS data gathering and app development, engage in planning and dialogue about value-added GIS

curriculum integration. GIS Educator professionals will model the use of pre-prepared geospatial modules aligned with 10th grade curriculum and C3 standards. Teachers will also make use of pre-prepared modules, a practice supported by research on professional development (see Baker et. al. 2015). These will provide teachers the stability they need to adopt new teaching strategies, with few concerns about planning time or departure from their curricular goals. After a two-week intensive training in the modules, teachers will participate in a two-week summer “camp” where they practice their newly acquired skills teaching History, Geography and Civics to student participants in a “Living Laboratory” (Phase II). During this time, teacher and student “Data Citizens Teams” will be deployed to local collaborator agencies to apply their geospatial knowledge in real civic contexts. Local “Geo Mentors” will assist in accessing needed data sets. Following major themes within the Global History and Geography II curriculum (e.g. industrialization, nationalism, imperialism, conflict, technology, and the interconnectedness of the world), Data Citizens Teams and community collaborators will address a local issue of concern by seeking, analyzing and presenting geospatial data to tell a story about the issue of concern. They may also be gathering data (geo-tagging) to create visualizations or to create needed data sets. These issues could include (but is not limited to) regional employment and labor, elections and voting, gentrification and regionalism, social media use, housing, migration and population, poverty, public health, and education. Teachers will form a Learning Community each afternoon, after students leave for the day, reflecting on the effectiveness of their teaching and planning for upcoming lessons.

During the academic year (Phase III), ongoing support and mentorship will be key to implementation. GIS Coaches will mentor and assist teachers to implement the new strategies and modules learned in the summer component, on a weekly first, then bi-weekly, basis, while

monitoring fidelity of implementation in the classroom. Local GIS Mentors (volunteers) will help teachers access and organize needed data sets. GIS Coaches will monitor teachers' fidelity to the model. Outcomes from those observations, along with teacher created topics will be used to design the agenda for monthly professional development sessions. Key components of the professional development series will include opportunities for teachers to hear from professionals and academics on a wide range of topics to understand how data is utilized to solve real-world research problems. Potential presenters include D'Youville College faculty members: Dr. Kim Bernosky, Biologist, Dr. Manpreet Rai, Psychologist, Dr. Lauren Clay, Disaster Planner, and Dr. James Lalley, Educational Assessment. These experiences will be combined with application workshops where teachers learn to apply their learning about academic geospatial issues to curriculum-tied geospatial learning segments. This long-term and sustained model of professional development is supported in the literature on successful professional development (Avalos 2011).

Teachers will also be expected to create a collaborative GIS project during the academic year with a community partner. The project will assist in connecting appropriate partners and GIS mentors will assist in project design. In an effort to foster sustained student civic engagement, an annual DATA CITIZENS competition day (name TBD) will be open to all students (both summer and academic year), their teachers, and their community collaborators designed to showcase open data mash-ups authored by students. Maps entered will be judged by local GIS and Education professionals. The competition day will provide opportunities for students to meet civic leaders, GIS professionals, and educators, to discuss the implications of their findings and explore further opportunities for civic engagement.

2).Students - DATA CITIZENS WNY targets Geography, Civics and Government instruction among those students who need it most. Two separate populations of students will be impacted by program activities, summer “Data Citizen Campers” and academic year classroom students in DCWNY Teacher classrooms.

Summer DATA CITIZENS Campers - Although only 20 students per year will be accepted into the DATA CITIZENS WNY Summer Camp, Buffalo Public Schools students will be prioritized as participants, followed by students from any in the five county region, as long as they attend schools with a high proportion of economically and/or sociologically disadvantaged students. DCWNY Summer Campers will be evaluated with pre-post evaluation tools to assess changes in attitude toward geo-spatial tools, engagement in learning, and changes in skills of geo-spatial analysis.

Students of DCWNY teachers - These students will be engaged during the academic-year, will be assessed using pre-post social studies achievement data.

DATA CITIZENS Professional Development Model

DATA CITIZENS WNY is an exceptional approach to professional development in Geography, Civics, and Government education as it provides a multi-dimensional methodology to changing teacher practice that is standards-based. Professional development will focus on modeling inquiry experiences for teachers of global history, geography and civics using the newly adopted K-12 Framework for Social Studies (Background K-12 Social Studies Framework, n.d.) and the C3 Standards for Social Studies (C3 Framework 2017) which both emphasize analysis of primary source data, expertly facilitated deep discussion, technological application experiences, and community immersion. Curriculum design will emphasize Inquiry-based and Project-based Instruction using essential questions to explore major historical themes.

Powerful civic engagement activities that make ties to students' experiences to life in real communities are a pre-requisite for future civic engagement (Rubin 2010). We also know that lower literacy levels among students taking high school social studies classes present real challenges for geographic and civic understandings such that students' reading levels tend to correspond to their ability to engage with informational texts in the social studies. The heavy emphasis placed on informational texts, which are central to Common Core literacy skills, presents a particular challenge for social studies teachers. This difficulty in learning from informational texts is especially pronounced for students with special needs and for ELLs (Tejero Hughes & Parker-Katz 2013; Misco & Castañeda 2009). In the Buffalo Public Schools, these groups are represented 22% and 15% respectively. Therefore, this project ties the curriculum to the "texts" in students' lives.

(ii) The extent to which the services to be provided by the proposed project involve the collaboration of appropriate partners for maximizing the effectiveness of project services.

This innovative model relies on community collaborators and may include a regional municipal authority, a regional healthcare system, and various local not-for-profit organizations to serve as community engagement sites during the summer experience, depending on teacher and student interests. Student and teacher "Data Citizens" teams, embedded in collaborator sites, will use their GIS skills to investigate a civic issue of importance to the collaborator organization. Students and teachers will use Open Source tools to gather geo-spatial data and creating geo-spatial visualizations (maps) that allow for deeper analyses of that local civic issue. These efforts are meant to assist the local organization and the community at large, as the artifacts of these efforts will be available as Open Source Education Resources for other engaged

citizens. During the academic year community partners will also work with those students participating in the DATA CITIZENS competition day.

DATA CITIZENS WNY has had initial conversations with various potential community collaborators including the Division of Citizen Services for the City of Buffalo, responsible for all resident-focused initiatives and management of open data systems; Kaleida Health, which is the largest healthcare system in WNY; and other local non-profit organizations that focus on quality of life issues in the Western New York Region, including but not limited to, Buffalo Niagara Riverkeeper, Homeless Alliance of WNY, and Elmwood Village Association.

Several cross-disciplinary partners within the institution will also serve as academic support for the program, such as the Departments of Health Services Administration, Education, Psychology, Biology and Mathematics. Faculty collaborators include Dr. Lauren Clay (Public Health), Dr. Kim Bernoski-Smith (Biology), Dr. Manpreet Rai (Psychology), and Dr. James Lalley (Education). Additional collaborators will include the schools and districts that support project teachers in the full implementation of this model. GIS Coaches will also serve as school-college liaisons to ensure that administrators have a stake in the outcomes. Volunteers, local GIS Mentors, will also provide support to teachers during the academic year. These volunteers will be culled from the local community via ESRI's GIS Mentor website. The Niagara Frontier Council for Social Studies will also serve in an advisory capacity as well as provide avenues to communicate with teachers more broadly throughout the region.

(iii) The extent to which the design of the proposed project reflects up-to-date knowledge from research and effective practice.

It is important to understand the various sets of academic frameworks that combined to create the overall proposed model. The next section explores the literature on developing geographic thinking and civic engagement among youth, as well as review research findings for professional development in these fields.

Geographic Thinking

Recent data on student achievement in Geography, measured by the NAEP Geography assessment, shows that fewer than 30% of American students are proficient in Geography. The most recent administration of the exam shows no significant changes in achievement among 8th graders from 2010-2014 (“NAEP - 2014 U.S. History, Geography, and Civics Assessments” 2017). These changes have remained flat for almost all demographic groups, including English Language Learners (ELLs), White students, and African Americans. Interestingly, scores have improved slightly for Hispanic students and for Pacific Islanders. Where one attends school has an impact on geographic acquisition, with suburban and private schools yielding better results than urban and public schools. Geographic thinking is increasingly being linked as a prerequisite set of skills in order to make critical connections across the curriculum and apply those to civic and global contexts alike (Gaudelli & Heilman 2009; Schell & Mohan 2013; Baker et. al. 2015). Such skills are clearly a pre-requisite for an active citizenry. A committee convened to establish goals for 21st century teaching and learning identified geographic thinking as not only essential in stand-alone geography coursework, but in science, math, technology, and ELA courses (Schell & Mohan 2013). Teachers and students equipped with the full potential that geographic tools provide can “generate questions, explore solutions, and make decisions about personal, local,

national, and international issues.” Such a skill set would require inquiry experiences that engage learners around their own questions about the world and harness geo-spatial technologies to answer those questions in local and global contexts.

One thing is abundantly clear; if American children hope to participate in our democracy and play a strong leadership role in our world, they must possess geographic knowledge, understandings, and skills. (Schell & Mohan 2013).

Nevertheless, geographic skills are not a direct conduit to critical understandings of civic problems and their solutions unless explicitly taught. Only two states in the nation require separate geography licensure (GENIP 2017). As such many researchers have called for a pedagogy-centered approach to teacher development focused on “critical spatial thinking” to assist teachers in helping their students make critical connections *while* they examine data sets, maps, and real social issues (Bearman et. al. 2016; Kinder 2017; Linn et. al. 2005; Baker et. al. 2012; Hinde 2015)

Civic Education

Scholars and policymakers alike understand the linkage between civic engagement and a healthy democracy. The more citizens know about how local, municipal and national government functions, the more able they are to engage with their legislators and policy makers around issues of local concern. Current assessments among adults indicate that, as of the 2016 election, civic engagement is slightly higher than in past years, however the tools to gather such data seem to favor college graduates and higher income respondents (Pew Research Center 2017). In reality, civic engagement patterns seem to correlate with racial and socio-economic identity markers. Low-income residents, people of color, less-educated residents, and recent

immigrants all have been found to have extremely low levels of civic participation (IEA 1999, Lutkus et. al. 1999 as sited in Kahne & Sporte 2008).

Civic engagement patterns likely begin in youth. Young people's civic engagement has been the subject of much attention in the educational literature and researchers are rather clear that young people lack civic knowledge and a clear understanding of what engaged democracy means (Baldi et. al 2001, Tourney-Purta et. al. 1999;2001, Hahn 2001 as cited in Kahne & Sporte 2008). Therefore *Civic education*, which teaches the knowledge and skills necessary to engage in the democratic process, must be taught with care and attention in American schools. Research findings connecting classroom civics to future civic engagement are mixed. Much study has been directed toward particular classroom interventions that are often inconclusive as to the connection between classroom instruction and the development of civic commitments (see Kahne & Sporte 2008 for an extensive review of that literature). However this may be due to the de-contextualization of civics learning from the practices of social research and civic engagement; and perhaps the location of civics in the curriculum sequence.

Students in today's schools often only take one term of American Government, which encompasses the "rights, responsibilities, and duties of citizenship." Previous work has emphasized the acquisition of historical knowledge about government from such courses. Measures of "engagement" have included propensity to vote or behaviors such as reading newspapers (as cited in Rubin 2007) as indicators of effective classroom practices. However, these indicators are problematic. Linkages between historical knowledge about civics and civic engagement have not been strongly supported by the literature (Kahne & Sporte 2008). Voting and newspaper reading may not be adopted until adulthood, if at all, and are distinct practices that are not necessarily correlated. In New York State, Civics is placed late in the 12th grade year.

As indicated in the New York State Social Studies Framework (9-12), engaged citizenship is often limited to “voting, obeying laws, paying taxes, serving on juries, and registering for selective service” (NYS Framework 2017), all of which are experienced in the abstract by young people who are not yet of legal age to engage in these behaviors. Most would agree that behaviors such as voting are merely the legal artifacts of engagement. Such a limited view of engagement ignores the extensive set of activities (and the requisite skills) that should occur in order for citizens to actively participate in their own governance. As such, the Framework also highlights that students should be able to “find, monitor, and evaluate information on political issues” (p. 47). Unfortunately, there is recent evidence that time devoted to critically consume such information, what might be called “high quality civic education,” has been vastly reduced to make room for literacy and math instruction (Kahne & Middaugh 2008). Nevertheless, such research skills are a pre-requisite to the ability to critically analyze and evaluate civic issues as they relate directly to individuals. Ultimately, direct application of civics learning is vital for students as they become “critical spatial citizens” (Kahne & Spote 2017). Real-world problems become animated and understood as students engage in their communities as literate and empowered “data citizens,” working alongside community agents for change (Feldman et. al. 2007).

Still, how they access and evaluate the sources used to explore problems is also of concern. There is a need to help students discern what is valid information on the path to making civically engaged decisions. Therefore research has pointed to the importance of developing critical media literacy skills in classrooms as a part of global citizenship education (Harshman 2017; Lewis-Spector 2016; Burroughs et al. 2009).

Research has also uncovered the importance of understanding how students make sense of their own civic entanglements experienced while in their communities and emphasize the need to cultivate civic identity. Researcher Beth Rubin has noted that “little is known about how students themselves define and understand civic life, apart from adult-devised definitions” (Rubin 2007). Often the tools used to capture what engagement looks like are inadequate to determine future civic engagement behaviors. Our ability to not only understand how young people make sense of civic engagement but also how they develop their civic identities seems key to ensuring fully engaged citizens able to find, research, and analyze the complex workings of local civic life. Developing the skills and values associate with civic engagement, what we are calling “critical spatial citizenship,” is one of the foci of this project.

Professional Development Models that Work

Providing support to teachers as they integrate geography into history and civics is the focus of this grant effort. Tabor & Harrington (2014) note that teachers crave assistance in connecting geography to history in a way that provides professional support and assistance with the application of GIS tools. In a survey of 316 teachers nationally who had received professional development about integrating GIS into K-12 teaching, Baker et. al. (2009) found that after sustained PD and classroom implementation, there was 44% more reporting of “real world relevance” for their students and a 35% increase in reports of “student engagement and motivation,” as a result of using GIS tools in their teaching. The authors also found that 62% of teachers preferred to implement curriculum exactly as it was modeled in professional development rather than create their own lessons. However, they also found that the longer the training time, the more likely teachers were to create their own lessons and to enjoy doing so (183). The use of pre-planned instructional modules as well as sustained involvement with

teachers throughout a three-year period are both integrated into the DATA CITIZENS WNY model.

However, understanding teacher attitudes, confidence level, and intentions are all key to programmatic implementation success. In an ambitious meta-analysis of research on the effectiveness of teacher professional development over a ten-year period, Beatrice Avalos (2011) found that the vast majority of research on effective professional development has focused on personal changes such as cognition, beliefs, and practices of teachers as they attempt to adopt new strategies. Insights include the importance of attention to teacher's prior beliefs and cultural beliefs that contribute to how an initiative is understood and interpreted, as well as the need for constant "monitoring of learning and refocusing teaching when necessary, as a key condition in any learning process" (Avalos 2011, 14). Both reflection (via the Learning Community) and monitoring (utilizing the GIS Coaches) are built into the DATA CITIZENS WNY model.

The aforementioned discoveries about teacher professional development and student engagement in civics and geography necessitate careful preparation of social studies teachers that connects history, geography, civics, demography, technology, community engagement, and data in a seamless and logical inquiry band. Such experiences must help teachers to connect big essential questions to their curriculum while harnessing data and technology tools as the means of inquiry.

B. SIGNIFICANCE

(i) The extent to which the proposed project is likely to build local capacity to provide, improve, or expand services that address the needs of the target population.

1. Innovative Professional Development

New York State teachers must complete 100 hours of CTLE (Continuing Teacher Leader Education) (a.k.a. professional development) during a 5-year period. Teachers may obtain those CTLE hours from various sources including colleges, BOCES (Board of Cooperative Education Services), and the district itself, as long as courses are taken with a registered provider of CTLE, of which D'Youville College is one. Professional development in Western New York districts is developed and mandated on a district-by-district basis. Each year, district Superintendents have both influence and control over what topics and initiatives are chosen as foci and district coordinators tend to seek, identify, and curate those professional development experiences for district teachers. What follows is a description of a local case that provides a strong rationale for building local capacity for high quality professional development of the sort we will design and offer. In the Buffalo Public School District, teachers may acquire PD from the sources listed above. However, the Buffalo Teacher Center (BTC) is a popular source due to the convenience of courses offered at times teachers are available, and the ease with which such courses are recognized for credit by the district. As a policy of the Buffalo Teacher Center Board, Buffalo Public School employees must facilitate all BTC course offerings. The use of internal candidates ensures that capacity is built and sustained from within. However this practice may also limit offerings and narrow the availability of innovative pedagogical offerings for local teachers. For example, as of the most recent publication of the fall 2017 PD calendar from the BTC, there is only one offering for secondary social studies teachers entitled "Assimilating National History

Day into our Classrooms using CCLS.” For district-led offerings during the 2016-2017 academic year, there was only one PD for secondary social studies teachers entitled “Theodore Roosevelt and the Birthplace of the Modern Presidency.” During the summer of 2017 there were no social studies offerings. D’Youville College, which is among the most trusted college collaborators in the region for professional development in teacher education, is highly focused on evidence-based approaches to instruction. With the nationally articulated need for innovative, evidence-based, approaches to professional development in history, geography, and civics (ESEA 2015 sec 2233 Ø20 U.S.C. 6663), local teachers require qualified and trusted local providers of professional development, such as D’Youville College.

As DATA CITIZENS WNY is a long-term, sustained professional development model that takes teacher and student interest into account, it is built upon a strong theoretical foundation and is likely to lead to sustained practice beyond the grant period. A model based on informed scholarship of effective instruction in global history, geography, and civics must provide both “a) hands-on civic engagement activities for teachers and students; and b) methodologies that educate students about the history and principles of the Constitution of the United States, including the Bill of Rights” (National Activities 2017). DATA CITIZENS WNY provides just this sort of pedagogy-focused professional development emphasizing hands-on experiences for both teachers and students via civics education. For secondary school teachers, this process will translate directly into better instruction for the region’s secondary school students as it emphasizes project-based learning, cooperative grouping, and authentic real-world connections, all of which are proven by the research to improve student engagement and performance.

Collaboration is also key to creating the high impact practices that will result in higher levels of academic engagement and achievement, as well as more authentic civic experiences.

The assistance of local academics, along with a range of data-focused specializations, community agencies and municipal collaborators, and assistance from volunteer Geo-Mentors will provide a built-in support network for teacher participants. Any or all of these collaborations can cultivate relationships that will be sustained past the grant period. The model is also designed to be supportive to busy teachers, eager to use new technological tools, but not requiring curriculum generation. Everything teachers need to reproduce activities will be provided within the DATA CITIZENS Summer Institutes.

2. Long-term and Sustainable Professional Development

We know that teacher buy-in is an absolute pre-condition for successful professional development. A key feature of the ongoing DATA CITIZENS WNY PD, during the academic year, is input by the teachers themselves into the topics chosen for inquiry and meeting agendas for monthly PD. So much of professional development is planned and implemented without the input of teachers. Initiatives start as “problems” to be “treated” with massive “interventions” that may often translate to a single day or a few hours of PD, instead of a sustained, programmatic approach. Topics are chosen and scheduled by high level administrators and “given to” practicing teachers, who may even be seen as “resistant” to change. The strong teacher-focused, teacher generated, professional development experiences in DATA CITIZENS WNY, to take place during the academic year, pre-supposes that teachers who are applying the DATA CITIZENS model are the most qualified to determine what their needs are for further development. In this way they will also provide feedback to the project directors on the nature of professional development needed by teachers, not the opposite, as can often be the case.

(ii) The importance or magnitude of the results or outcomes likely to be attained by the proposed project, especially improvements in teaching and student achievement.

1. Improved Teaching and Professional Engagement

The program seeks to better prepare teachers in under-resourced schools for the types of work and life skills that students will need in the 21st century. The powerful geo-spatial experiences to be offered to teachers during the summer will serve to support student learning in the content areas during the academic year. Thinking about how best to prepare teachers for their future work led us to the plan for a “living laboratory.” It is the innovation that we feel most distinguishes DATA CITIZENS WNY from other professional development efforts. The Phase II Living Laboratory starts in Week 3 of the summer program. In this phase teachers work alongside GIS education experts to apply their newly acquired learning with DATA CITIZEN campers for the first half of each day. Modules learned in Phase I are used during Phase II. In the afternoon hours teachers reflect on their successes, their challenges, and on any changes they might make for the following day’s instruction. The Living Laboratory extends from weeks 3-4 of the summer program. This opportunity to “practice teach” the modules with willing participants, under the supervision of experts, and before having to teach to one’s own students, is the truly unique feature of the DATA CITIZENS WNY model. Extended mentorship from GIS Coaches, GIS Mentors, academic experts, and community partners provides a 360-degree network of support as teachers implement and apply new pedagogies for content-area instruction.

By providing high quality content-area experiences to teachers we predict a range of outcomes, including better prepared and engaged educators. Teachers often wish to adopt new technological skills and curricular content but are undermined by time and budget constraints. This leads to a pattern of implementing changes to their teaching only when mandated by their

school administrators or the district. Triage change efforts such as these are much less likely to be successful for teachers or for their students. Offering teachers a 4-week paid opportunity to learn GIS technology, familiarize themselves with key data sets and to work through a new curriculum is essential to their success. Unique to our model is the opportunity for teachers to practice their new skills teaching students in a low-risk environment, before applying their skills in their own school environment. Additionally, teachers will be afforded time to make local connections, through their engagement with local community partners, which will help them build relevant high impact projects into their teaching.

2. Improved Student Learning and Engagement in History, Geography and Civics

There are two distinct cohorts of students who will be affected by program efforts – Summer Camp students (20 per year) and Academic Year students of teachers who are DATA CITIZENS WNY participants (exact number TBD but we anticipate no less than 100). For both groups of students, positive outcomes such as improved attitude, perseverance, and motivation for learning social studies, as well as increased achievement, are all expected. As program modules are mapped on the framework for the new Global and Geography II Regents exam, we expect students to be better prepared for this highly consequential assessment (exam fully implemented by 2022). Students’ ability to translate geo-spatial knowledge into achievement data in global studies and geography is vitally important, as this knowledge is a base prerequisite for graduation. Both groups will have the opportunity to work with a community partner to explore, analyze and represent data through interactive mapping visualizations. Doing so, they will see the trajectory of community issues from their origins to possible solutions. The importance of data visualizations will be more clear to them once they have played a role, with

teachers and community partners, in defining and describing these issues as geo-spatial problems.

3. Increased Civic Engagement and Educational Equity

Regarding civic understandings and engagement, by advocating for themselves and their communities on issues of concern, we seek to build connections between school curricula, student's lived experiences, and civic entities. We see these experiences as authentic applications of what can often be abstract civic understandings. We know from the research that these ties of relevance build a range of affective domains, not the least of which is motivation for the subject area. The element of community engagement provides direct access to community organizations that work for the public interest, which provides students a better understanding of the mechanisms for change in their communities and the basic skill set required of engaged citizens.

DATA CITIZENS WNY is uniquely positioned to address equity issues for students with historically low rates of on-time graduation. By targeting urban, suburban, and rural schools in a five county region, we encapsulate a wide range of social, economic, and structural problems found in urban, suburban and rural spaces. Topics of contemporary study such as immigration, poverty, educational inequality and food insecurity (to name a few) map directly onto global historical topics and harness Geography's unique perspective to make sense of such problems. Such high impact experiences will also provide preparation for the new Regents exam in Global History and Geography II.

(iii) The extent to which the results of the proposed project are to be disseminated in ways that will enable others to use the information or strategies.

1. Certificate for Geo-spatial Curriculum Design for teachers who complete the 3-year process. Sustained engagement with DATA CITIZENS involves access to all Phase II professional

development and the opportunity to become a mentor to new teacher participants. Mentors also may take on a facilitator role in Phase I Summer Institutes during Years 2 and 3. Teachers who take advantage of these opportunities will be granted a Certificate in Geo-spatial Curriculum Design.

2. Sustainability of the program will be ensured via distribution of the DATA CITIZENS curriculum, geo-spatial units that can be adopted to connect global issues in curriculum to local questions and a model for providing the resources and data sets needed for those inquiries.

Additionally, an online platform will be created that serves to facilitate communication among participants during the project, showcase curriculum, share resources, highlight success stories and recruit participants for the annual Data Day competition. The platform will also serve as a public resource for curriculum, community project examples, and promotion of the program.

This platform will continue to be publicly available to all teachers beyond the program timeline.

3. With the NYS Global History and Geography II Regents still in development, our goal is to align program experiences with publicly available frameworks from Engage NY, the source for policies and frameworks around curriculum reform in New York State. Connecting grant content directly to planned Regents Task Models and other modes of inquiry as they are announced ensures that the DATA CITIZENS curriculum will serve as one option for preparation for the NYS Regents exam. It is, therefore, our hope that other regions in NYS, as well as those states that have clearly defined standards for teaching global history, geography and civics, adopt the model as one that proves effective for improved student learning outcomes.

C. QUALITY OF THE MANAGEMENT PLAN

(i) The adequacy of the management plan to achieve the objectives of the proposed project on time and within budget, including clearly defined responsibilities, timelines, and milestones for accomplishing project tasks.

DYC's proposed management plan describes, in detail, the activities, roles and responsibilities, tools, timelines and milestones that will be undertaken by the proposed project staff and stakeholders to accomplish the DATA CITIZENS WNY project tasks and to achieve the overall goals of the DOE Office of Innovation and Improvement of innovative instruction, professional development, and student achievement in American History, Civics, Government and Geography through the leveraging of technology to support these outcomes.

The D'Youville College has a strong track record of administering federal, state, and privately funded grants. Financial Affairs has an extensive set of checks and balances in place, enabling clean financial management. In addition, the College participates in a yearly audit to ensure fiscal responsibility.

The College will receive and disburse grant funds per a prearranged schedule and will comply with all statutory and regulatory requirements applicable to the National Activities grant. A strong communication system institutionally and among participating organizations and program staff will be in place via email, phone calls, site visits, and postal mail. Project staff will always be aware of expectations and can contact D'Youville College's administration with questions and/or concerns. Through these strong ties of communication, issues can be easily addressed and programmatic changes made, as necessary.

The DATA CITIZENS WNY Project will operate under the leadership and guidance of Dr. Julie Carter, PhD and Dr. Hilary Lochte, PhD, both experienced teacher educators and

project directors on various projects related to primary and secondary education as well as professional development for educators. Specifically, Dr. Julie Carter has a PhD. and Ed.M. in Social Foundations of Education, a NYS Teaching Certification Social Studies 7-12 (Provisional 1997-2002), and has a Mastery certificate in Spatial Thinking and Web Mapping from Sloan Consortium. As a Program Director of TESOL Education at D'Youville College she is responsible for program administration, student guidance, unit assessment and data gathering for accreditation purposes. Dr. Carter has fifteen years college teaching and leadership experience in both higher education and community-based settings and has also published work in the field of parent engagement and parent advocacy (Johnson, Carter & Finn, 2011). She has written numerous curricula packages and mentored hundreds of in-service teachers to develop curricula for implementation in urban school settings. Dr. Carter has extensive experience providing training and technical assistance to schools and school districts to address a range of instruction and assessment initiatives, including the integration of GIS technology into instruction. Dr. Carter has had budgetary responsibility on numerous educational intervention projects and other grants (private foundation and federal grants) with experience in proposal writing and evaluation techniques as well as accountability reports tied to accreditation. Her expertise in qualitative ethnographic research methodologies, educational intervention projects, grant administration, and evaluation techniques will prove useful in her role as Co-Project Director.

Dr. Lochte has nearly twenty years of experience in the field of education. An Associate professor, she has taught in D'Youville College's Education department, since 1999, primarily teaching pre service teachers in the graduate education. With a doctorate in the Sociological Foundations of Education, Dr. Lochte works to expose her students to issues of diversity, cultural competence and literacy and the vital role teachers can play in creating equitable school

environments. Dr. Lochte's focus on equity in and access to education and the importance of literacy has led her work at with many different students seeking educational opportunity. In addition to serving as Education Department chair since 2011, Dr. Lochte also serves on the Multilingual Education Advisory Committee for the Buffalo Public Schools. This committee advises the Buffalo Public Schools on ways to improve schooling for the growing number of English language learners in the school district.

The DATA CITIZENS WNY Co-Project Directors will have full authority to direct and administer the grant, and the Financial Affairs Department will oversee the financial aspects of the grant. As an institution of higher learning, D'Youville College has the tools and technology necessary to successfully manage public funds. Dr. Carter and Dr Lochte will have authority to expend grant funds via access to petty cash and submit invoices to Business Office for payment. They will receive monthly financial reports from the Business Office and will have real time access to grant budget via the college's financial software. The Business Office, namely the Grant Accountant, will authorize payments and audit budget to ensure federal regulations are met.

The Co-Project Directors will receive support from the Project Manager (to be hired), who will be responsible for the day-to-day operations of the project. This individual will report to Drs. Carter and Lochte and work closely with them in the overall administration of the DATA CITIZENS WNY Project. He/she will assist the Co-Project Directors in implementing the project, hiring and supervising staff/consultants, overseeing budget, facilitating communication between offices, collecting data, preparing reports, and conducting public relations. The Project Manager will maintain confidential records for all participants. An electronic database and paper

files with all teacher and student information will be maintained in secured computers and filing cabinets in the project office.

An Advisory Board will be established in the Fall 2017 and include representatives from the D'Youville community, program staff, school districts, and community organizations that will operate as partners. D'Youville's programmatic experience will facilitate a timely start-up, planning time and implementation of the program. Staff will be hired and the program will begin in October 2017 (or immediately after award notification).

A diversity of perspectives will be brought to bear in the operation of DATA CITIZENS WNY including the administrative functions and offices mentioned above. Each group has a representative on the Advisory Board, providing a mechanism to guide ongoing project implementation and improvement. Information gained from program feedback mechanisms and evaluation tools will be presented and discussed at Advisory Board meetings to develop a three-year strategic plan and revise it as necessary. The following describes the communication and reporting schedule and responsibilities of the Co-Project Directors:

- The Co-Project Directors will meet annually with the VP of Academic Affairs;
- The Co-Project Directors will provide a quarterly progress report to the Dean of the School of Arts, Sciences, and Education outlining progress, accomplishments, and challenges; and
- Advisory Board will meet three times per year at which a progress summary will be presented for discussion.

All data will be collected in accordance with program requirements and shared for peer reviews and/or other forums to evaluate program success. The Co-Project Directors and project staff will also meet at least monthly with teachers, coaches and project stakeholders to elicit

recommendations aimed at improving the program, identifying problems and brainstorming solutions.

As an institutional priority, DATA CITIZENS WNY will receive ongoing support from all areas of the college, notably Financial Affairs, Institutional Research, Information Technology, and Academics. The tables below highlight the general campus facilities available for DCWNY programming and departments committed to this program.

D’Youville College Support:

D’Youville College Department	Services To Be Provided
Financial Affairs	Detailed monthly budget reports, fund disbursement, financial statement audit, program audit
Institutional Research	Data & data analysis
Information Technology	Online technical support
Academics	Faculty professional development presenters

D’Youville College Facilities:

Facility	Purpose
Library and Computer Laboratories	GIS Training, Summer Camp programming, PD Summer Cycle, Research, project planning
College Center/Dining Hall	Special events, program space, mtgs.
Academic Buildings (KAB, Alt, SASE & BFAC)	Classrooms, labs, multi-media rooms

Specifically, the DATA CITIZENS WNY program will receive the following: office and program space, furniture and equipment, and supplies. D’Youville will provide a permanent office for the Project Manager and Coaches on campus, as well as access to the college’s library,

computer and science laboratories, classrooms, and meeting rooms. Funds to purchase the necessary consumable and instructional supplies for the successful completion of the program goals and objectives are requested in detail in the Budget Narrative provided for this proposal. However, the college will provide phone/fax access and promotional materials design and printing.

The proposed budget outlines the projected program costs. There are no items that are considered costly and in need of additional justification. The budget complies with and supports all requirements set forth in the proposal. All key personnel, with the exception of the .27 FTE Co-Project Directors, are full-time and, therefore, will devote all of their time to the DATA CITIZENS project.

The proposed budget and budget narrative also reflects a reasonable cost for a project of this size and scope. The salaries and benefits are consistent with those of other personnel of similar rank and responsibility at host site. The costs to deliver services are sufficient to support the project activities, number of persons to be served, and the anticipated results and benefits. Additionally, D'Youville will not use any of the grant funds to supplant current funding for activities described in this proposal.

With grant funding dedicated to D'Youville College's DATA CITIZENS WNY project, the project aims at delivering on the priorities of the USDOE Office of Innovation and Improvement to implement innovative instruction and professional development in American civics, government and geography through the leveraging of technology to support new teaching practices and educator development in Western New York schools. D'Youville College will utilize the National Activities grant funds to implement the DATA CITIZENS WNY project aimed at the introduction, execution and evaluation of an innovative, evidence-based

professional development program for Social Studies teachers in Western New York schools as well as a student-centered, inquiry-based model of hands-on learning for their students in civics, government and geography aimed at improving student achievement and enhancing student engagement.

DYC’s DATA CITIZENS WNY program aims at achieving these goals through delivering on our program’s primary objective: Using Geo-spatial tools (GIS) and structured professional development experiences, the program will engage Social Studies teachers in a sustainable educational model that will increase the quality of Global History, Geography and Civics teaching, as well as improve student outcomes in social studies and their engagement in civic life). The charts below outline the project’s major activities/components, responsible persons, and time frame for achieving these milestones over the three-year project period.

DATA CITIZENS WNY Project Timeline

	Year 1	Year 2	Year 3
Project Directors, Project Manager, GIS Coaches	October 2017- May 2018: Build PD program; GIS training; develop evaluation tools; organize summer institute/camp; recruit teacher and student participants	Begin first cohort of in school PD; communicate regularly with teachers and administrators; GIS coaches observe teachers weekly; plan monthly PD’s based upon evaluations and reflections from previous month; plan for 2019 summer camp; recruit new cohort of teachers and students	Begin second cohort of in school PD; communicate regularly with teachers and administrators; GIS coaches observe teachers weekly; plan monthly PD’s based upon evaluations and reflections from previous month; summer 2020 build replicable PD program for schools
PD Series	In development for September 2018 implementation; survey of SS teachers through NFCSS on perceived PD needs for geography-used to build PD	September 2018, in school PD begins; monthly PD sessions; weekly classroom observations; teachers reflect on ongoing basis	September 2019, in school PD begins; monthly PD sessions; weekly classroom observations; teachers reflect on ongoing basis

Data Citizen Camp	First camp begins July 2018; teachers receive GIS and curriculum training; Students attend teacher led sessions; Teachers and students engage with community partners on GIS based projects; online community built for teachers	Second Data Citizen camp begins in July 2019; Cohort 2 teachers receive GIS and curriculum training; Students attend teacher led sessions; Teachers and students engage with community partners on GIS based projects; online community built for teachers	Run Data Citizen camp for students and community partners; Teachers from cohorts 1 and 2 act as Camp facilitators; gather teacher reflections on PD experience and instructional changes;
Community partnerships	June 2018 run informational workshops for community partners about upcoming Data Citizen camp; July 2018 community partners work with Data Citizen Teams and teachers on GIS projects	June 2019 run informational workshops for community partners about upcoming Data Citizen camp; July 2019 community partners work with Data Citizen Teams and teachers on GIS projects	June 2020 run informational workshops for community partners about upcoming Data Citizen camp; July 2020 community partners work with Data Citizen Teams on GIS projects
Advisory Board	3 meetings per year	3 meetings per year	3 meetings per year

DATA CITIZENS Phases I & II Timeline:

	Week 1 (Teachers only)	Week 2 (Teachers only)	Week 3 (Teachers & Students)	Week 4 (Teachers & Students)
AM	Spatial Thinking & Geo-Technologies	Spatial Thinking & Geo-Technologies	Living Laboratory Student Intro to Spatial Thinking & Geo-Technologies Community Project Planning	DATA CITIZENS Community Project Implementation
PM	Spatial Thinking & Engaged Citizenship	Spatial Thinking & Engaged Citizenship Teacher Preparation Time	Teacher Preparation Time	Teacher Preparation Time Future Planning

(ii) The extent to which the time commitments of the project director and principal investigator and other key project personnel are appropriate and adequate to meet the objectives of the proposed project.

The following time commitments and qualifications of the project staff are specifically related to providing professional development activities to improve teacher and student outcomes.

CO-PROJECT DIRECTOR (.27 FTE - Dr. Julie Carter): Qualifications: Holds a Ph.D. and Ed.M. in Sociological Foundations of Education (State University of NY at Buffalo), a NYS Teaching Certification Social Studies 7-12 (Provisional 1997-2002), and has a Mastery certificate in Spatial Thinking and Web Mapping from Sloan Consortium. As a Program Director of TESOL Education at D'Youville College she is responsible for program administration, student guidance, unit assessment and data gathering for accreditation purposes. Dr. Carter has fifteen years college teaching and leadership experience in both higher education and community-based settings. She has written numerous curricula packages and mentored hundreds of in-service teachers to develop curricula for implementation in urban school settings. Dr. Carter has extensive experience providing training and technical assistance to schools and school districts to address a range of instruction and assessment initiatives. Dr. Carter has had budgetary responsibility on numerous educational intervention projects and other youth-oriented grants (private foundation and federal grants) with experience in proposal writing and evaluation techniques as well as accountability reports tied to accreditation. Dr. Carter's research focus has been on the sociological context of urban schooling and on retention of new teachers in high needs schools. Her knowledge of best practices in the teaching of social studies (pedagogy) and experience introducing the use of geo-spatial thinking

to pre-service teachers, are essential in current projects related to improving instruction to secondary social studies teachers, including sensitivity in working with diverse populations (race, culture, ethnicity, religion gender expression and sexual orientation). Her expertise in qualitative ethnographic research methodologies will assist in program evaluation. Duties and responsibilities: The Co-Project Director is responsible for DATA CITIZENS WNY program development and implementation, fiscal management, federal reporting and evaluation. Dr. Carter will jointly select, train, supervise and evaluate staff; facilitate ongoing program development; monitor and facilitate progress in meeting objectives; coordinate and carry out tested research evaluations of project outcomes; assure compliance with all federal and college regulations and policies; establish effective relationships with all stakeholders; serve as a liaison with all internal and external groups; assure ongoing dissemination of program information; prepare annual reports for the USDOE, the advisory board, and the college; prepare all communications; and process payroll timesheets.

CO-PROJECT DIRECTOR (.27 FTE - Dr. Hilary Lochte): Qualifications: Holds a Ph.D. and Ed.M. in Sociological Foundations of Education (State University of NY at Buffalo).

Duties and responsibilities: The Co-Project Director is responsible for DATA CITIZENS WNY program development and implementation, fiscal management, federal reporting and evaluation. Dr Lochte will jointly select, train, supervise and evaluate staff; facilitate ongoing program development; monitor and facilitate progress in meeting objectives; coordinate and carry out tested research evaluations of project outcomes; assure compliance with all federal and college regulations and policies; establish effective relationships with all stakeholders; serve as a liaison with all internal and external groups; assure ongoing dissemination of

program information; prepare annual reports for the USDOE, the advisory board, and the college; prepare all communications; and process payroll timesheets.

PROJECT MANAGER (1.0 FTE - To be hired): Qualifications: Master's degree in Education, Educational Administration, Geography, or Business, plus a minimum of three years of experience working in secondary or higher education, and excellent oral and communication skills with demonstrated flexibility and proven interpersonal skills. Duties and responsibilities: Coordinate planning of all professional development activities, including the initial summer professional development cycle of GIS training implementation and facilitation of the train-the-teacher sessions and the student-centered summer data camp sessions; speakers, participants, and program logistics; assist in participant selection and recruitment; assist participants in assessing skills and goals; monitor student progress; coordinate follow-up program on participants; serve as a liaison between program staff and target schools; maintain office files and database; maintain appropriate program/participant records (e.g. participant demographic data, contacts, and other required student statistical information); maintain office files and minutes of meetings; and prepare and submit detailed report of professional development activities each month to the Project Directors to whom this position reports. Project Manager will handle administrative details of scheduling and organizing the professional development workshops. The Project Manager will work directly with the teachers enrolled in the DATA CITIZENS WNY program and oversee the "Data Citizens Teams" and "Learning Communities" as well as the implementation of the professional development modules in the classroom.

GIS COACHES (2 Positions/1.0 FTE each - To be hired): Qualifications: Geographic Information Systems Instructor with work experience in the field of GIS, or teaching GIS as a

geography educator. Possesses a credential and/or degree in the GIS field with prior teaching experience at all levels. Knowledge of the GIS software, GIS development environments, and web-based GIS technologies including ArcGIS, data, location analytics, and other products. Advanced skill sin GIS programming, web GIS, open source GIS. Skilled with data collection and database management, processing and quality control, with the ability to construct and operate custom web-maps. Strong communication skills in English and the capacity to communicate effectively with diverse populations, especially in the educational setting. Preferred proven ability to work collaboratively in a team-oriented environment; experience in teaching in the classroom; experience with the professional GIS community and demonstrated commitment to implementing GIS practices in education, youth programming, etc. Dedication to continuous professional development. Duties and Responsibilities: During the summer session, GIS Coaches will be charged with assisting in the creation of an effective syllabus and participating in the four-week intensive training learning environment for the teachers seeking GIS training in a professional development-centered, inquiry-based educational setting. Following the intensive teacher-training and professional development sessions, GIS Coaches will develop geo-spatial thinking centered professional development modules for teacher implementation. Coaches will assist with student and teacher subject matter problems and assist in the advisement and evaluation of successful in-class implementation. During the academic year, GIS coaches will be assigned to mentor and assist teachers with the implementation of their new strategies learned in the summer session and, on a weekly/bi-weekly basis, monitor the fidelity of implementation in the classroom, providing reports to the Project Manager. GIS Coaches will collaborate with all colleagues in the DATA CITIZENS WNY program for instructional improvement and adhere to all program policies and standards.

GIS EXPERT CONSULTANTS (Hourly): Two nationally-renowned GIS education experts will assist with the teacher and student component of the Phase I Summer Institute and Phase II Summer Camp. These programs will occur for three consecutive summers and both consultants have committed for the three years of the grant.

Joseph Kerski, Ph.D., GISP, Education Manager for ESRI - Dr. Kerski is a leader in the GIS education field. He has conducted hundreds of teacher-focused professional development workshops, presented at numerous cross-disciplinary conferences, and published extensively, both books and articles in scholarly journals, on applying GIS in K-16 classrooms. Dr. Kerski will lead the first two days of the Summer Institute for teachers with a two-day workshop entitled “Spatial Thinking & Geo-Technologies.” The goals of these sessions will include:

1. Developing knowledge and skills in geotechnologies: GIS, remote sensing, and GPS, including technical skills, analytics, cloud, data sources, data formats, multimedia maps, data quality; map projections, symbolizing, georeferencing, measurement, smartphone-to-map workflows, publishing data and maps, and spatial statistics.
2. Developing teaching skills using a spatial citizenship perspective; fostering critical thinking and problem-solving around global history and civics topics.
3. Developing confidence to apply skills and perspectives to move forward toward working with students in coming weeks.

Lyn Malone, MST, GIS Consultant - Lyn Malone, a former middle and high school social studies teacher, holds a Master’s Degree in Social Studies Education and an Advanced Certificate in Scientific and Technical Illustration. Ms. Malone is an educational consultant specializing in the classroom application of spatial technologies such as GIS, GPS, and Remote Sensing and has been widely recognized for the extraordinary success of various initiatives in

school settings. Ms. Malone will lead the remaining two weeks of the Summer Institute for teachers with a one week and three day intensive series entitled “Spatial Thinking & Engaged Citizenship.” The goals of these sessions will include:

1. Understanding linkages between the C3 standards, NYS Framework and geo-spatial experiences
2. Evaluating modules for use with high school students
3. Teaching Big Ideas through geo-spatial lenses
4. Accessing open source data sets and organizing data
5. Designing crowdsourcing and Survey 123 experiences
6. Anticipating student GIS learner challenges

Lyn Malone will be retained as a consultant-as-needed. She will advise program staff as challenges arise in working with data sets and creating visualizations.

D. QUALITY OF THE PROJECT EVALUATION

(i) The extent to which the methods of evaluation include the use of objective performance measures that are clearly related to the intended outcomes of the project and will produce quantitative and qualitative data to the extent possible.

Evaluation will be an ongoing process achieved through progress reporting at all levels and will serve two purposes. The proposed project will include formative, summative, quantitative and qualitative evaluation measures to ensure the impacts of program strategies and activities toward meeting program goals and objectives.

The overarching goal of this project is to improve teaching in geography, civics and government. To this end, we have established specific and measurable objectives to guide this project. The table below reflects these objectives for the progress and success of the program in achieving its process and outcomes objectives.

	DATA COLLECTION	RESPONSIBLE STAFF	TIMELIME	MEASURE OF SUCCESS
Phase I: Social Studies teachers will receive training in GIS tools via a two-week summer institute.				
Objective 1.1 Attitude Teachers trained in the Summer Intensive PD model will demonstrate a positive attitude change regarding the application of GIS tools and geo-spatial thought process in key ideas of social studies.	Pre- & Post-Assessment Instruments	Co-Project Directors, Project Manager, GIS Coaches, Evaluator	Annually, Years 1-3 prior to and following the Summer One-Week Intensive PD Model	Y1, Y2, Y3: 13 of 15 teachers (cumulatively 39/45) or 87% will self-report a positive attitude change
Objective 1.2 Efficacy Teachers trained in the Summer Intensive PD model will have increased confidence in application of geo-spatial tools in teaching social studies.	Pre- & Post-Assessment Instruments	Co-Project Directors, Project Manager, GIS Coaches, Evaluator	Annually, Years 1-3 prior to and following the Summer One-Week Intensive PD Model	Y1, Y2, Y3: 12 of 15 teachers (cumulatively 36/45) or 80% will self-report increased confidence

Objective 1.3 Intent Teachers trained in the Summer Intensive PD model will have intentions to: - Use GIS tools in teaching - Use inquiry-based instruction and assessments in teaching - Apply new strategies	Pre- & Post-Assessment Instruments	Co-Project Directors, Project Manager, GIS Coaches, Evaluator	Annually, Years 1-3 prior to and following the Summer One-Week Intensive PD Model	Y1, Y2, Y3: 10 of 15 teachers (cumulatively 30/45) or 67% will self-report intentions to implement GIS learnings in classroom
Phase II: Social Studies teachers' will apply newly acquired GIS knowledge and skills with student learners via a two-week summer camp/living laboratory.				
Objective 2.1 Attitude Students enrolled in the Data Citizens WNY Summer Camp/ Living Lab will have a positive attitude change regarding their own "spatial citizenship" and engagement in learning.	Pre- & Post-Assessment Instruments	Co-Project Directors, Project Manager, GIS Coaches, Evaluator	Annually, Years 1-3 prior to and following the Summer Camp / Living Lab	Y1, Y2, Y3: 16 of 20 students (cumulatively 48/60) or 80% will self-report a positive attitude change
Objective 2.2 Skills Acquisition Students enrolled in the Data Citizens WNY Summer Camp/ Living Lab will acquire GIS skills including: - Gathering data on a civic problem - Analyzing data using GIS tools - Reporting or represent findings to experts	*Observations *Project Based Assessment	Co-Project Directors, Project Manager, GIS Coaches, Evaluator	Annually, Years 1-3 following the Summer Camp / Living Lab	Y1, Y2, Y3: 15 of 20 students (cumulatively 45/60) or 75% will demonstrate acquisition of skills via completing a civics project using GIS
Objective 2.3 Intentions Students enrolled in the Data Citizens WNY Summer Camp/ Living Lab will intend to engage in civic action or community government based on new knowledge.	*Pre- & Post-Assessment Instruments	Co-Project Directors, Project Manager, GIS Coaches, Evaluator	Annually, Years 1-3 prior to and following the Summer Camp / Living Lab	Y1, Y2, Y3: 12 of 20 students (cumulatively 36/60) or 60% will self-report intentions to engage in civic action

Phase III: Teachers will receive professional development throughout the school-year and implement acquired curriculum modules in classrooms with assistance from GIS coaches and mentors.

Objective 3.1 Impact Improvement of teaching methods in classroom based on PD models.	*Pre- & Post-Assessment Instruments	Co-Project Directors, Project Manager, GIS Coaches, Evaluator	Annually Y1, Y2, Y3	Y1, Y2, Y3: 12 of 15 (cumulatively 36/45) teachers or 80% of teachers demonstrate improvement from pre- to post-assessment of PD indicators
Objective 3.2 Fidelity of Implementation	*Observations *FOI rubric *Project Based Assessment	Co-Project Directors, Project Manager, GIS Caches, Evaluator	Annually Y1, Y2, Y3	Y1, Y2, Y3: 10 of 15 (cumulatively 30/45) teachers or 67% of teachers demonstrate proficiency in GIS skills implementation based on rubric and evaluation Y1, Y2, Y3: 75 of 100 (cumulatively 225/300) students or 75% of students will demonstrate acquisition of skills via completion of a civics project using GIS.

(ii) The extent to which the methods of evaluation will provide performance feedback and permit periodic assessment of progress toward achieving intended outcomes

Formative Evaluation

First, the formative assessment will demonstrate that the project is being implemented as planned. This will be accomplished by regular review of data collected to ensure compliance with data collection protocols; interviews with project staff to identify any irregularities in data or concerns with data collection; and review of the data entry process to monitor for complete and accurate entry.

The Co-Project Directors will provide input into the evaluation plan's design, review and refine all evaluation strategies, and receive semi-annual and annual progress reports from the External Evaluator. These individuals will meet at least semi-annually to formally review the system. The entire project staff including the Co-Project Directors, Project Manager, and GIS Coaches will have special responsibility for gathering, recording, and reporting data on an ongoing basis. The Co-Project Directors will record and organize the data to be submitted to the evaluator, college administration and DOE.

The project staff has extensive experience in the collection, analyzing and reporting data. In addition, the External Evaluator will be Ms. Bridget Zimmerman. Ms. Zimmerman earned a Master's in Counseling and Educational Psychology in 1993 from the SUNY at Buffalo. She has served as the Manager for Research and Evaluation for the Research Foundation at Buffalo State University and is currently President of Nautilus Evaluation Services. Ms. Zimmerman has extensive experience in program evaluation, having served as an evaluator for many federal grants, including the following DYC grants: 1) HHS Nursing Workforce Diversity; 2) DOE Upward Bound; and 3) HHS HCOP. Her areas of experience, in addition to grant evaluation,

include satisfaction, educational research, operational research, Rapid Cycle Quality Improvement (RCQI), and medical and psychological studies. She has presented at national conferences and published best practices.

Ongoing formative/qualitative data will be shared at both staff meetings and the Advisory Board. These meetings will focus on developing written action plans based on the data, with the plans forming an ongoing part of future meeting agendas. It is the intent of the project to develop strategies that will reliably evaluate both GIS and professional development on teacher and student outcomes.

Data will be collected at regular intervals throughout the grant period. Qualitative analysis will include observing behavior, interviews, and focus groups. These multiple data sources will be used to triangulate evidence, and the transcripts will be coded for emerging themes, scanned for patterns, and used to draw conclusions. Quantitative analysis will occur in multiple stages, including frequency analysis as well as T-tests.

Each professional development activity (e.g. summer institute, monthly professional development sessions, online community) will be individually assessed and aggregate progress reports will monitor the level to which the goals of the proposal were attained. For example, at the end of the summer experience, students will take a post-assessment designed to measure changes in “critical spatial citizenship” defined as the ability to use GIS tools to gather data on a civic problem, analyze a civic issue, and articulate their results. Changes will also be assessed in attitude toward civic engagement as well as intentions to engage in real civic action. By the end of the Summer experience teachers will be evaluated on changes in attitudes about “critical spatial citizenship,” on their confidence in applying geo-spatial tools in their teaching, on their intentions to use GIS tools and Inquiry-based instruction and assessments in Global History,

Geography and Civics, as well as on their level of preparedness to apply the new strategies in the confines of their classroom during the academic school year. These same teacher assessments will also be conducted at the end of each academic year. Overall fidelity of implementation measures will be tabulated in order to understand how closely teachers followed the model provided during the academic year or over the course of the professional development year.

A statistical analysis of the data will be produced annually. The Co-Project Directors will work closely with the Evaluator to ensure that all evaluation activities including timelines and responsibilities are articulated and communicated to all program staff. The Project Manager, working with the Evaluator, will be responsible for organizing the program level evaluation data structures and data management systems. The Co-Project Directors will also be responsible for the reviewing, analyzing and communicating to all staff, college offices and administration, and partners, the baseline data against which program effectiveness will be measured.

We do not anticipate any obstacles for assessing the program's progress. In an effort to identify challenges with data collection, the Co-Project Directors will address data collection in regularly scheduled staff and Advisory Board meetings. If problems arise and are outside of the purview /expertise of this group, the Co-Project Directors will solicit assistance from the Evaluator, and/or other content expert(s) as needed. Any failure to meet activity objectives will be analyzed with the input of affected parties, and recommendations for corrective measures made. In addition to the collection and analysis of the data called for in the activity objectives, the Evaluator will interview individual teachers, students, and community collaborators; conduct focus group sessions, attend workshops, and observe classes as necessary to produce the most useful and meaningful evaluation. Further, the Evaluator will survey representatives of all of

project stakeholders annually and assess the extent to which the broad aims of the project are being embraced by the represented school districts.

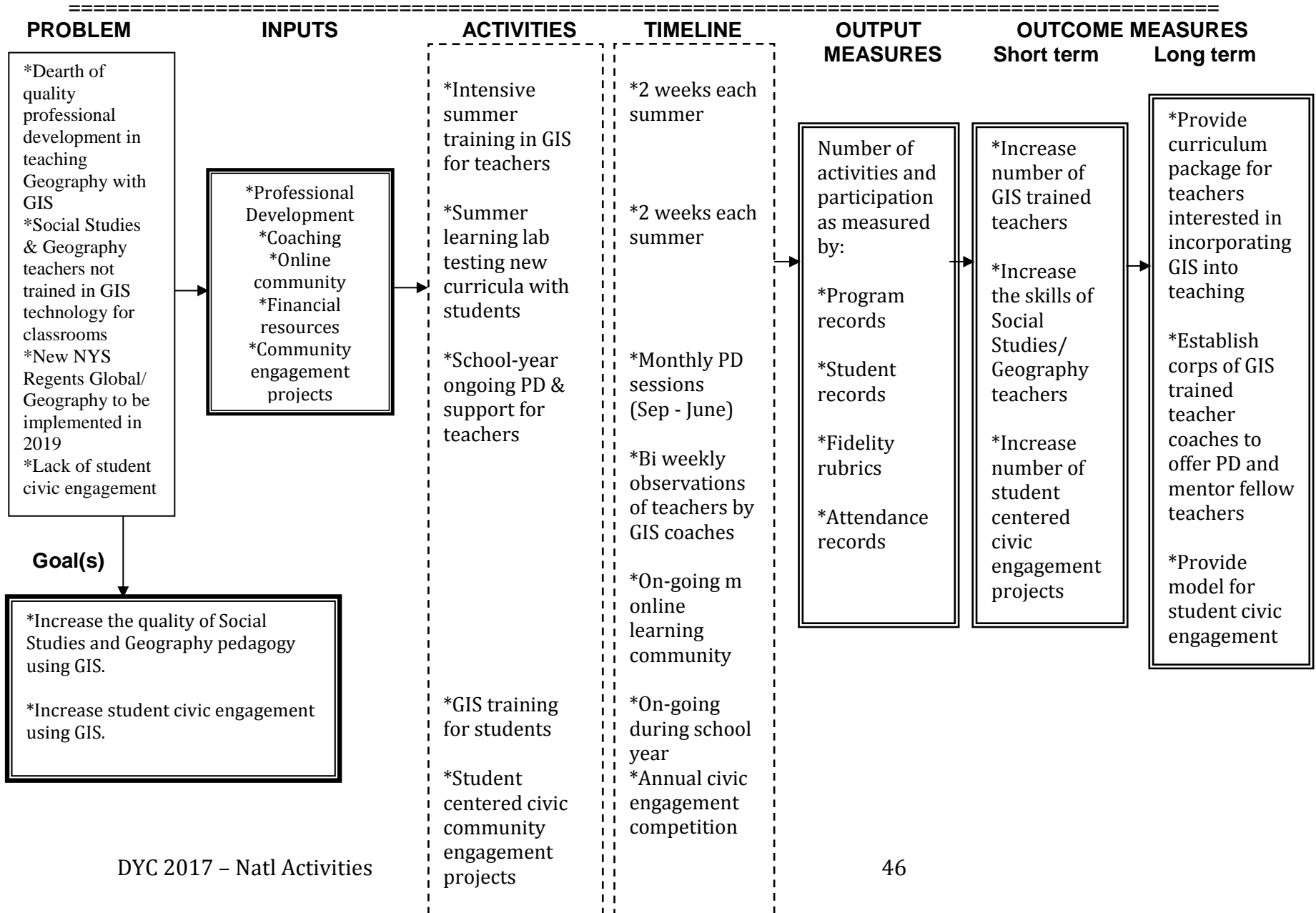
Summative Evaluation

The summative evaluation measures will be the means to demonstrate the effects of the project on teacher and student outcomes. The summative evaluation will use the data collected to determine effectiveness of the program and its success in terms of the major objectives.

Evaluation measures will assess the level to which the objectives have been met and whether the outcome can be attributed to the project elements.

At the end of the grant period, a summative evaluation will be conducted by the Evaluator with assistance from the Co-Project Directors and Advisory Board. The summative evaluation will refer to the progress reported in the semi-annually reports, reference the data collected, and demonstrate qualitative and quantitative progress toward the project goals.

D'YOUVILLE COLLEGE
DATA CITIZENS WNY Project – Logic Model



Evaluation

Objectives

A. Teacher Change

1. Attitudes

- Att to Critical Spatial Citizenship

2. Efficacy

- Confidence in applying geospatial tools in their teaching

3. Intentions

- Intentions to use GIS tools in teaching
- Intentions to use Inquiry-based instruction and assessments in teaching
- Level of preparedness to apply the new strategies

B. Student Change

1. Attitudes

- Att to Critical Spatial Citizenship
- Engagement In learning

2. Intentions

- Intensions to engage in action
- 3. Acquisition of GIS tools skills**
- Gather data on a civic problem
- Analyze data using geospatial tools
- Report or represent findings to experts

C. Professional Development

1. Impact of PD on Teachers

2. Fidelity of implementation (FOI)

Data Collection

A1. Pre-Post assessment instruments

A2. Pre-Post assessment instruments

A3. Pre-Post assessment instrument

B1. Pre-Post assessment instruments

B2. Pre-Post assessment instrument

B3. Project-based assessment

C1. Pre-Post assessment instruments

C2. Observations with FOI rubric

Analysis

A1-3. Frequency analysis
T-test

B1.
Frequency analysis
T-test

B2. Textual analysis

C. Program Records
Frequency analysis
T-Test