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Cary Chadwick
University of Connecticut

David Dickson
University of Connecticut

Chester Arnold
University of Connecticut

Laura Cisneros
University of Connecticut

John Volin
University of Connecticut

See next page for additional authors

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Connecting Generations Through Informal Geospatial and Conservation Education

Authors

Cary Chadwick, David Dickson, Chester Arnold, Laura Cisneros, John Volin, Todd Campbell, David Moss, and Laura Rodriguez

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Connecting Generations Through Informal Geospatial and Conservation Education

Abstract

University of Connecticut Extension educators are engaged in a new program that fosters intergenerational informal science, technology, engineering, and math learning through combining geospatial technology and conservation science. Conservation Training Partnerships (CTP) is a program that brings together adult conservation leaders and high-school-aged youths for a 2-day hands-on training that leads to community-based conservation projects. The program creates synergistic project teams that combine the adult partners' community and conservation knowledge with the youth partners' technological facility. This innovative intergenerational approach holds promise for Extension professionals in improving technology-based trainings and projects.

Keywords: STEM education, geospatial technology, intergenerational learning, conservation, smartphones

Cary Chadwick
Associate Extension Educator
Department of Extension
University of Connecticut
Haddam, Connecticut
cary.chadwick@uconn.edu
@CCGeoGirl

David Dickson
Associate Extension Educator
Department of Extension
University of Connecticut
Haddam, Connecticut
david.dickson@uconn.edu

Chester Arnold
Extension Educator
Department of Extension
University of Connecticut
Haddam, Connecticut
chester.arnold@uconn.edu

Laura Cisneros
Visiting Assistant Professor
Department of Natural Resources and the Environment
University of Connecticut
Storrs, Connecticut
laura.cisneros@uconn.edu
@laucis32

John Volin
Professor
Department of Natural Resources and the Environment
University of Connecticut
Storrs, Connecticut
john.volin@uconn.edu

Todd Campbell
Professor
Neag School of Education
University of Connecticut
Storrs, Connecticut
todd.campbell@uconn.edu
@dtcampbe

David Moss
Associate Professor
Neag School of Education
University of Connecticut
Storrs, Connecticut
david.moss@uconn.edu

Laura Rodriguez
PhD Candidate
Neag School of Education
University of Connecticut
Storrs, Connecticut
laura.rodriguez@uconn.edu
@ljsrodriguez

Introduction and Background

Extension educators at the University of Connecticut (UConn) Center for Land Use Education and Research (CLEAR) have provided hands-on informal training in geospatial technologies, including geographic information

system (GIS) and GPS use and web mapping, for over two decades (Rozum, Wilson, & Arnold, 2005). Since 2014, this training has included workshops designed to teach individuals how to collect geographic field data with a smartphone and use the results to create interactive web maps with low-cost apps and web-mapping tools. The workshops are popular among adult conservation volunteers. However, informal observations after these trainings revealed that although participants did well in an assisted classroom setting, their lack of comfort in using new technologies often hindered efforts to integrate the technologies into conservation work in their communities. Consequently, the educators sought a new approach to improve the comprehension and adoption of these technologies among adult learners.

Our team of CLEAR educators and faculty from UConn's Department of Natural Resources and the Environment and Neag School of Education worked together to develop the Conservation Training Partnerships (CTP) program. CTP, which is supported by funding from the National Science Foundation, pairs adult conservation leaders with technologically savvy high school students. Together, the teams learn how to apply geospatial technology to solve conservation problems. This method of intergenerational learning is an approach that has generated benefits in other contexts (Morgan, Bertera, & Reid, 2008). Implementation of CTP has allowed us to seek to train intergenerational teams to conduct geospatially based conservation projects that meet local needs while studying the effectiveness of the intergenerational learning experience. The first year of the 5-year project is complete, and the program is already showing promise as a way for Extension professionals to improve technology-based education and outreach efforts.

Workshop Overview and Curriculum

Intergenerational learning describes the way that people of all ages can learn together and from each other (Corrigan, McNamara, & O'Hara, 2013). CTP is designed to foster reciprocal learning and youth–adult partnerships and to engage participants from diverse backgrounds. Each team member brings varied interests, experiences, and abilities to the partnership, and pairs work together to gain skills, values, and knowledge while completing a conservation-focused project.

The training program consists of a 2-day immersive workshop, followed by execution by each team of a conservation project designed and developed by the team. Workshops are conducted across Connecticut for the purpose of reaching a broad range of urban and rural communities, with special consideration paid to reaching underserved populations. During the program's inaugural year, participants ranged in age from 14 to 73. Program leaders organize pairs of adolescent and adult participants who work together during the workshop on learning modules, field exercises, and project development. Educators teach participants practical approaches to conservation that involve user-friendly geospatial technologies, combining the learning expertise of the different generational participants.

Geospatial technology is presented as a science, technology, engineering, and math learning concept and a practical tool for carrying out science-based projects. Participants are introduced to geospatial science through interactive online tools, including the Geospatial Revolution Project (Penn State Public Broadcasting, 2016) and CLEAR story maps (Center for Land Use Education and Research [CLEAR], 2018a). Through hands-on fieldwork, teams create trail maps using a GPS smartphone application called Track Kit to record an electronic "breadcrumb" trail with data points enhanced with text, photos, and audio. Participants also learn to use an application called Epicollect5 to build and collect custom geo-referenced surveys that can be used for scientific field data collection. Teams learn how to download data from Track Kit and Epicollect5 and use those data in Google Maps to create, edit, and share interactive maps.

The technology training is complemented throughout the workshop with conversations about conservation science topics, including the history of the conservation movement and historic and current patterns of regional land use. In addition, members of the intergenerational teams pause frequently throughout the workshop to incrementally develop their projects, thereby applying the concepts and tools they are learning to address local conservation needs.

Other studies have shown that learning and interaction styles vary between adolescents and adults (Murdock & Paterson, 2002). Accordingly, implementation of CTP involves laying the groundwork for successful intergenerational partnerships by clearly defining expectations, providing guidance for effective communication, and designing a realistic timeline for meeting project goals and deadlines.

At the end of the workshop, each team presents a preliminary project plan to the group. After the workshop, the teams further refine and carry out their projects in the community under the guidance of the CTP program coordinator and Extension educators. By the end of the first year, the approach had proved successful in spurring the use of technologies to address local conservation needs. Fourteen of the 15 teams completed conservation projects, including inventories of flora and fauna, water quality assessments, and land- and water-based trail maps (CLEAR, 2018b). Research by the Neag School of Education on the effects on participants of the intergenerational colearning approach is still in its early stages and will be further developed in future years.

Conclusion

CTP provides a model Extension professionals can leverage to improve their technology-based programs. By establishing adequate ground rules and encouraging open, active dialogue between members of intergenerational pairs, we have shown through CTP that adults and young people can successfully learn and work together to complete projects in their communities that might not otherwise be possible. The two groups bring different abilities, interests, and life experiences to the learning partnership and stand to gain valuable skills from each other. In the CTP program, teens are helping adult conservation leaders use geospatial and mobile technologies, while adults are helping connect teens with nature and their communities. The program provides a purposeful exchange of learning between older and younger generations that benefits their personal growth and the communities where they live.

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