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**Experiential Learning & Teaching in Higher Education**  
**A Journal for Engaged Educators**

VOLUME 1, NUMBER 2  
*December 2017*

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**Cover image:** Even in managed environments, fire remains integral to healthy, stable, natural habitats. Here the University of Tennessee at Martin's Dr. Eric Pelren helps students setting and maintaining a controlled habitat burn as part of the hands-on learning experience in his wildlife-habitat course.

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# Experiential Learning & Teaching in Higher Education

## A Journal for Engaged Educators

VOLUME 1, NUMBER 2

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## A Note from the Editor

KURT HARRIS

*Southern Utah University*

“Now, what I want is, Facts. Teach these boys and girls nothing but Facts. . . .” The speaker [Mr. Grandgrind], and the schoolmaster [Mr. M’Choakumchild], and the third grown person present [Mr. Bounderby], all backed a little, and swept with their eyes the inclined plane of little vessels, then and there arranged in order, ready to have imperial gallons of facts poured into them until they were full to the brim.

Thus begins Charles Dickens’s 1854 novel *Hard Times*. For those who have read it, you will remember that, by the end of the novel, Dickens has exposed and indicted a Victorian education system that turns out teachers and students who act as unfeeling automatons. The novel demonstrates not only that children learn most effectively when they are encouraged to imagine, engage, and reflect but also that hindering creative, active, introspective learning can be detrimental to society.

In the spirit of *Hard Times*, this issue of *Experiential Learning & Teaching in Higher Education* presents examples of several successful experiential learning programs that encourage, to varying degrees, imaginative, engaged, reflective learning. The communities in which these programs operate benefit greatly from the university students’ efforts, and, as with any well-conducted experiential learning program, the students see clear benefits to themselves, as learners, as well. The four articles in this issue describe the experiences of their authors at Nazareth College, Michigan State University, SUNY Oswego, and Southern New Hampshire University, experiences that can serve as models for building innovative programs and establishing effective practices at our own institutions.

The first article, “Operationalizing the Roles of Experiential Learning: Bringing the Partnership to Life,” describes and analyzes a collaborative program benefiting Nazareth College students and the Discovery Charter School students with whom the Nazareth students work. As the article

demonstrates, clearly defining the responsibilities of key members of Nazareth's Partners for Learning program was critical to the program's success.

With the focus of its study on the use of ePortfolios in Michigan State's Bailey Scholars Program—an integrative, self-directed, engaged community of learners—"Integrating High Impact Practices: Recognizing Attributes and Overcoming Obstacles in Learning ePortfolios" provides guidance for those considering incorporating ePortfolios into their curriculum. Implementing ePortfolios presents challenges, but if the technology is understood, explained, and utilized following best practices, it can be an effective means to document and demonstrate student learning.

"A University and Middle School Mentor-Scholar Partnership" presents the results of a five-year study of an innovative program between SUNY Oswego and the Oswego School District. The article outlines the program's pedagogical philosophy and demonstrates the impact of the program on both the university student mentors and the "at-risk" middle school student mentees.

The final article in this issue, "Project IICE: Inspiring Interdisciplinary Collaboration Experiences," outlines a unique cross-disciplinary learning experience requiring the coordination of efforts and resources from academic departments and campus facilities staff and administrators. As feedback from those working on the SNHU Arboretum Project indicated, clear communication among everyone involved in projects of this type, from planning through completion, is critical to achieving desired outcomes.

Finally, on the cover of this issue of ELTHE is an image of a controlled burn carried out by students in a wildlife habitat course at the University of Tennessee at Martin. As readers are aware, historically devastating wildfires displaced and killed many people around the world in 2017, from the U.S., Canada, and Chile to Portugal, Spain, and Australia. Creating opportunities for students, like those at UT-Martin, to learn firsthand about the positive effects they can have on the environment is as important now as it has ever been.

As we work at our respective institutions to create and promote innovative experiential learning opportunities, I would ask that we keep in mind the message of *Hard Times* and of the essays in this issue of *Experiential Learning & Teaching in Higher Education*: it is our responsibility to inspire students to exercise their imaginations, enable them to engage actively in their communities, and encourage them to reflect upon the effects of their actions.

# Operationalizing the Roles of Experiential Learning: Bringing the Partnership to Life

ADAM M. LEWANDOWSKI, DEBBIE G. DEPALMA,  
REBECCA S. ENGLUND, & MELISSA M. CARTWRIGHT  
*Nazareth College & Discovery Charter School*

**ABSTRACT.** This article focuses on the partnership between Discovery Charter School of Rochester, New York, founded in 2011, and Nazareth College Partners for Learning. The Partners for Learning program engages Nazareth College students in partnerships with the children, teachers, and staff of eight urban sites. The authors examine the four critical roles that work to foster program success: (1) Associate Director for the Center for Civic Engagement, (2) Student Site Coordinator, (3) Site Representative, and (4) Classroom Teacher. We describe each of the four roles, how the roles support experiential learning, and, most importantly, how we consistently collaborate to ensure success for all parties. We have gathered multiple forms of reflection, and we share data focusing on the impact of student learning for both personal and professional growth. Finally, Discovery Charter School students describe what having a Partner in their classroom means to them, how the Partners have improved their learning, and how the relationships that have formed over the semester/year(s) have had an impact on them.

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## **Operationalizing the Roles of Experiential Learning: Bringing the Partnership to Life**

Experiential learning collaborations can take many forms and apply a wide range of administrative support structures. This article focuses on the partnership between Discovery Charter School of Rochester, New York, founded in 2011, and Nazareth College Partners for Learning (PFL). This successful collaboration was awarded a President's Community Service Honor Roll Award in 2013 and was recently recognized with a 2016 NASPA Grand Silver Medal and Gold Excellence Award in the category of Civic Learning, Democratic Engagement, Service-Learning, and Community Service. The Partners for Learning program engages Nazareth College students in partnerships with the children, teachers, and staff of eight urban sites. Over 135 Nazareth College students participate in this program annually, with 20 of those students placed with Discovery Charter School. These partnerships are designed to help raise the academic performance and educational aspirations of the children, while heightening the social awareness and sharpening the professional skills of Nazareth College students. Open to all academic majors, Partners for Learning is part of the federal work-study program that provides students with a rich experiential learning framework that employs many of the most effective practices of service learning.

The highly collaborative partnership between Discovery Charter School and PFL began in fall 2011, when the school first opened. With each semester, we grow stronger in our ability to provide a unique and enriching experience for college student "Partners," as well as improve educational outcomes for the elementary students. The goal of this article is to articulate the functions of the partnership which make it a success: their roles, the process to ensure a reciprocal relationship where all parties benefit, and first-hand accounts of the scope of learning through service.

The roles within experiential learning partnerships have been developing over time, with research leading to refinement of a list of critical elements. These critical elements outline good practices across a spectrum of activities, including academic service-learning, internships, practica, and co-curricular service. The Wingspread Special Report document on "Principles of Good Practice for Combining Service and Learning" identifies important tasks for

faculty, staff, students, community partners and members that support the operationalization of roles, including:

- clarifying the responsibilities of each person and organization involved;
- articulating clear service and learning goals for everyone involved;
- training, supervision, monitoring, support, recognition, and evaluation to meet service and learning goals;
- providing structured opportunities for people to reflect critically on their service experience;
- allowing for those with needs to define those needs; and
- committing to program participation by and with diverse populations (Honnet & Poulen, 1989).

In “Principles of Good Practice in Community Service-Learning Pedagogy,” Jeffery Howard identifies the importance of providing “educationally sound mechanisms to harvest the community learning” and providing “support for students to learn how to harvest the community learning” (1993). These guidelines assert the importance of thoughtful consideration by faculty, staff, and community partners to the tasks necessary to facilitate learning.

While exploring the essentials of academic service-learning, Barbara A. Holland and Sherril B. Gelmon (1998) identify that community partners should participate in planning, defining needs, and designing service activities. Community partners can assume key roles in the student learning experience by providing professional expertise and knowledge of professional networks. Over time, the partnerships can evolve to become the basis for more complex joint planning and evaluation. In “An Introduction to Service-Learning: Or, An Open Letter to College and University Leaders Committed to Creating Conditions for Students to Contribute and Learn,” Robert Sigmon (1996) asserts that “establishing conditions for students to engage with others in a shared search for doing what needs to be done (Service) and pursuing what needs to be learned (Learning)” is important work for colleges and community. In identifying the fundamental intentions and actions for service-learning, Sigmon identifies two commitments that inform a college student’s role in experiential learning: “the desire to and practice of contributing (serving, caring, loving, and being connected)” and “the desire to and practice of learning and growing.” The rich history of principles and

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practices from the fields encompassing experiential learning provided a solid foundation upon which the roles within PFL were created.

Four critical roles in PFL work in tandem to foster program success: (1) Associate Director for the Center for Civic Engagement, (2) Student Site Coordinator, (3) Site Representative, and (4) Classroom Teacher. As authors, we will each explain what our role is, how this role supports service learning, and, most importantly, how we consistently collaborate to ensure success for all parties. Gathered from multiple forms of reflection, the data we share focuses on the impact of student learning for both personal and professional growth. Finally, the Discovery Charter School students will describe what having a Partner in their classroom means to them, how the Partners have improved their learning, and how the important relationships that have formed over the semester/year(s) have had an impact on them.

## Program Description

Partners for Learning (PFL) is an innovative co-curricular service program that focuses on poverty reduction, education, and community empowerment by building partnerships with schools, education centers, and human service organizations. The unique “partnering” aspect of the program enables our community of faculty, staff, college students, and youth to develop effective working relationships that meet individual needs while achieving community-based goals. Critical to the mission of Nazareth College, the PFL program empowers college students to develop the skills necessary for the pursuit of meaningful careers while building diverse relationships and heightening their social awareness. PFL was founded in 1994 as a federal work-study program. Developed within the Student Development Division, this co-curricular service experience applies the best practices for service-based learning and the achievement of community outcomes. PFL was founded to support the mission of the college “to inspire dedication to the ideal of service to their communities” (“Mission and Vision”) and to respond to a great community challenge: the low graduation rates of Rochester city school children.

Hallmarks of this program included best practices, such as the Eight Principles of Good Practice for Experiential Learning Activities from the National Society of Experiential Education (“Eight Principles of Good Practice” 2013) and Dr. George Kuh’s High Impact Educational Practices

(2008). Student success is also at the forefront of our work. The best practices include identified student learning outcomes; program assessments; reciprocity; sustained service experience over months and often years; progressive student leadership; and reflection demonstrating civic learning, professional skills development, and personal growth.

Starting with Hope Hall and Rochester City School #36, 20 students traveled from campus into the community and spent six to eight hours each week serving as tutors and mentors. Paired up in classrooms, the Nazareth students worked in small groups, floated around each classroom, or worked one-on-one with elementary students. The focus was to enhance the academics and educational aspirations of the young students and to build relationships within our community. Today, PFL has grown to employ 135 Nazareth College students yearly, providing service to eight schools and afterschool centers, including the Discovery Charter School.

## **Discovery Charter School Overview**

Discovery Charter School (DCS) opened its doors in August 2011 and was built on the tenets of serving urban students living in high poverty—approximately 98% meet federal guidelines for poverty—through an extended school day and year focused on a challenging and engaging curriculum grounded in national standards and strong character education. DCS enrolls approximately 280 students in grades K–6, with two classes at each grade level. Teachers are highly dedicated, putting in long hours to ensure strong instruction while also meeting the social and emotional needs of the students.

DCS follows the Association for Supervision and Curriculum Development (ASCD) model, which advocates the importance of supporting the whole child through five components: health, safety, engagement, supportive environments, and challenging experiences (Saia & DePalma, 2013). At DCS, each student enters school healthy and learns about and practices a healthy lifestyle. Students are provided a healthy breakfast, lunch, and fruit or vegetable for a snack through the school partnership with Wegmans Healthy Snacks Program. Students have scheduled play time daily and physical education up to four times a week. Each student learns in an environment that is physically and emotionally safe for students and adults. Supporting this environment are a primary and intermediate dean, a school counselor



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to support students who struggle, and assistant teachers to ensure student safety. The culture of the school maintains this intentional focus on the whole child. Each week, the entire school comes together for community circle to celebrate students in many ways and showcase learning at various grade levels.

Throughout the school day, each student is actively engaged in learning and is connected to the school and broader community. As DCS is an EL Education School, each grade level focuses on two learning expeditions, which have students working with local and global community entities. Each student has access to personalized learning and is supported by qualified, caring adults. The student-teacher ratio is roughly eight students to one teacher. Each classroom has two teachers, each grade level has access to an intervention teacher for targeted instruction, and all non-teaching staff interact with students strategically to support both academically and emotionally as needs arise. Each student is challenged academically and prepared for later success through a highly rigorous curriculum based on state and national standards. Technology is also a central focus: each student in grades 2–6 has a Chromebook, which is used in all content areas throughout the day. Grade-level teams collaborate daily and meet with instructional coaches twice a month to plan, reflect, and improve instruction.

## Unique and Innovative Practices

The PFL program is an example of effective collaboration between Student Development and Academic Affairs. One very innovative approach that highlights this connection is the integration of PFL into the new Liberal Arts College Core Curriculum. Implemented in fall 2013, all students under the new core curriculum must participate in one Experiential Learning (EL) opportunity. In order for a program to be designated as EL, students submit an application that must be approved by the EL Committee, a multidisciplinary, curricular and co-curricular team of faculty and staff. PFL was one of the first successfully implemented co-curricular EL opportunities at Nazareth College. The methodologies of PFL were very influential to the development of the new EL standards and have become a template for both curricular and co-curricular programs seeking EL status at the College.

## Assessment of Outcomes

The PFL program employs a student learning and success model that utilizes student learning outcomes and substantial assessment to ensure that program goals are achieved. The assessment process includes:

- student survey self-reports of learning;
- formal formative feedback from community partners, teachers, and agency staff;
- rubric-based assessments of written reflections; and
- assessment of group discussions and reflective activities occurring each semester.

Below are the student learning outcomes data for 2014–2015:

- 96.7% of Nazareth College students improved their leadership and professional skills.
- 100% of Nazareth College students demonstrated personal growth through their experiences.
- 98% of Nazareth College students gained a greater understanding of social issues facing the community.
- 98.2% of Nazareth College students improved their ability to build relationships and work effectively with youth and adults with backgrounds and experiences diverse from their own.

In the 2014–2015 program year, PFL provided 16,324 hours of service to the community. PFL students work in Rochester City Schools, a district that has a 43.4% high school graduation rate, with less than 10% of those graduates considered to be college ready. Data collected from teachers, administrators, and staff members of our partnering sites show that in all cases, Nazareth students were able to meet the educational needs of students. Elementary students increased the number of assignments completed and improved their understanding of concepts. Those surveyed reported an increased understanding of college possibilities and high educational aspirations for themselves.

In meeting college goals, Nazareth students in the program reported increases in social awareness (85% of students) and professional skills (98% of students). Focusing on concepts of diversity, the Nazareth students reported

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increases in understanding differences (98%), enhancing their ability to work with diverse communities (89%), and improving their abilities to differentiate their teaching methods (87%).

## **The Administrative Structure**

Partners for Learning utilizes a unique administrative structure that incorporates faculty and staff advisement, community partner oversight, and student leadership. The structure addresses community engagement challenges, including the development and measurement of mutually agreed upon goals, orientations and progressive developmental training, supervision, reflection, mechanisms for providing formative feedback, processes to address shortfalls, and open lines of communication. The administrative components create an agile, responsive organization that empowers college students, increases the capacity of community partners, and ensures that the work of the program is meeting community goals. Several administrative positions are crucial to the success of our partnerships, and the following sections provide descriptions of the job responsibilities for each position accompanied by narratives that provide examples of these roles in action.

## **Staff and Faculty Leadership**

The PFL program employs one Nazareth College staff member who is part of the College's Center for Civic Engagement. This center reports to both Academic Affairs and Student Development divisions and has oversight for Academic Service Learning as well as co-curricular service ("Civic Engagement"). Coordinating the PFL program in collaboration with the community partners and student leadership comprises approximately 45% of one full-time position, held by the Associate Director for the Center for Civic Engagement. The responsibilities of that position include:

- managing program budgets, including accountability for spending, identifying program needs, and developing budget proposals;
- providing strategic direction for initiatives that connect to College and community goals;
- supervising student workers, graduate assistants, and volunteers
- selecting, training, assigning work, setting and approving schedule and time records, processing payroll, and handling job performance issues;

- supervising members of the Partners for Learning Council who serve as student coordinators, transportation coordinators, site coordinators, and liaisons with each site;
- planning and implementing leadership development opportunities;
- managing community partnerships and limiting liability by implementing program and College policies at each site;
- making periodic site visits to meet with site representatives and partners, maintaining Memoranda of Understanding;
- in collaboration with student leaders, planning and implementing orientations, trainings, and meetings that provide opportunities for students to learn and gain leadership and job skills necessary to complete service projects;
- creating opportunities that help students reflect on and process their experiences;
- educating students by implementing the Experiential Learning component of the core curriculum;
- creating program assessments and reports;
- planning and carrying out publicity in collaboration with Campus Marketing; and
- identifying areas for funding in collaboration with College Advancement, including grant writing.

## College Faculty and Staff Support

Part of the program's success is a result of leveraging the resources of the faculty and staff at the College. Faculty and staff provide program advisement, trainings, and discipline-specific workshops. Integrated into the scholarship of Nazareth College, the PFL program depends upon the strong academic development that occurs in our classrooms. As a direct result of instruction, students bring the knowledge and skills gained through their academic disciplines into their work in the program. In addition, the students bring their experiences from PFL into the college classroom by enriching dialogues, connecting theory and practice, asking informed questions, and providing insights from authentic experiences.

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Some of the trainings and workshops include:

- Mandated Reporting
- Code of Ethics
- Panel Discussion on Urban Education, including students, parents, and educators
- Positive Behavioral Interventions
- Safe Zone Training
- Poverty and Education
- Kwanzaa Observance (ways to incorporate Kwanzaa into educational settings)
- Stress Management for Human Service Workers
- Community Youth Development Principles
- Assets Development
- Time Management and Other Professionalism Topics
- Teaching Communication, Problem Solving, and Conflict Resolution to Children
- Sex Trafficking Awareness
- Tutoring for Reading and Math
- Public and Charter Schools Community Panel
- MLK Campus Commemoration and Day of Service
- Exploring Leadership Styles
- Public Speaking
- Diversity and Inclusion
- Active Listening/Effective Communication

## **Community Partner Leadership**

An important part of our program is the site representative, a position that is held by a teacher or staff member who works for the community site. The Curriculum Coordinator at Discovery Charter School has served as the site representative since the inception of the program. This person works with the Partners for Learning and the classroom teachers who host them. Each semester, approximately 8–12 undergraduate students work in classrooms for two-hour blocks at least twice a week. The goal of the site representative is to (1) be highly intentional with the placement and purpose of each Partner, (2) ensure the Partner feels empowered by their work, and (3) make sure the classroom teacher and students gain exceptional support

focused on improving academic outcomes for students. At the beginning of each semester, Partners attend an orientation led by the site representative and often a classroom teacher when time allows. Here, Partners learn the school history and mission, as well as the impacts Partners have made over the last five years. Partners share their stories, why they became Partners, and what they hope to gain from this experience. During this initial meeting, the goal is for Partners to know they are considered part of our school family, and to promise them that as the semester unfolds, they will undoubtedly feel that sense of family and purpose in the work they do each day at the site. During this meeting and throughout their service, the site representative checks in, reminding Partners that one goal is for them to be excited to come to DCS each week. If there are any concerns, adjustments to roles and responsibilities will be shifted to ensure a mutually beneficial experience.

Making this collaboration meaningful requires reflection and feedback from all parties. Obtaining feedback is done formally through surveys and informally through conversations, with the goal of making the partnership as beneficial as possible. As an example of collaboration, three years ago, a site representative decided to change how Partners were placed and concentrated them in Kindergarten classes, where they worked with students one on one and in small groups. The reflection and feedback the Partners gave allowed for a lower teacher-student ratio and highly intentional instruction targeted at student needs. This is one of many examples of how site representatives ensure cohesion and increase communication with all parties. The duties of the site representative are:

- serving as a liaison with teachers, administrators, college students assigned to the site, and program coordinators;
- assisting with program planning by meeting with the program coordinators twice each semester at minimum;
- identifying classrooms, teachers, and staff members who are enthused about the program, and placing college students;
- aiding with the orientation of new college students to the building, and to their partnering teachers/staff members;
- instructing teachers/staff members how best to utilize the college students; and
- facilitating the distribution of program evaluations twice per semester.

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After six years of the program running two college semesters per year, staff and students have fully embraced this multi-layered partnership. First, students receive both academic and emotional support from a caring, invested partner whom they see minimally twice a week. As a result of the PFL presence, there is a 5:1 student-to-adult ratio during intervention block, ensuring critical targeted instruction that Partners have been trained on through modeling and co-teaching. Many outside organizations attempt to offer support in schools (host sites) and fail for many reasons, most often because the host site provides little support to the outside organization. If the host site, in this case a school, does not invest time and resources, such as naming a site representative who engages with the program several times a week, it most likely will not succeed or, at best, will not fulfill its potential. Having a dedicated site representative who works in tandem with the Partners, the site coordinator, the teachers, and the Associate Director for the Center for Civic Engagement is critical to ensure clear communication and foster success with all members of the partnership.

## The Classroom Experience

There is no question that the Partner's experience comes to life in the classroom, and the classroom teacher is the day-to-day contact that ensures Partner support and success. The classroom teacher's roles include:

- modeling instruction and providing explicit plans and materials in collaboration with the Partner;
- troubleshooting and providing ongoing support as needed;
- providing an orientation to the classroom culture and an introduction to the children;
- developing the tasks the college students will perform, ensuring that the work most often involves child interaction focusing on academics and raising educational aspirations;
- providing guidance and support that enables the college student to be successful in their work;
- providing a mid-semester and semester-end evaluations of the college student's work; and
- examining and discussing attributes of an "engaged" partner and possible obstacles.

Melissa Cartwright, a co-author of this paper, has been a kindergarten teacher at Discovery Charter School for six years and part of the PFL program since it began. As a classroom teacher, she knows that having strong supports in place is necessary in order for students to achieve the academic outcomes we hope for, which is why she gladly welcomes Partners for Learning into her kindergarten classroom: She truly consider herself, her team, and her students lucky to have the support of this highly collaborative program. The classroom teacher's main responsibilities as a host teacher include developing a positive and supportive relationship with Partners, modeling instructional practices, and providing meaningful feedback.

## Partners In Action

The Partners for Learning program truly benefits all parties involved, especially students. Partners, or as my students call them, "our college helpers" support our entire Kindergarten program in a variety of ways. Each morning around 9:00 they arrive, and the excitement builds in our students. Here is an opportunity for additional academic support but also emotional supports as well—strong connections are formed between our partners and students over the course of a semester, which we have found to mutually beneficial—an added perk to our collaboration. During their time in the classroom partners reinforce whole group instruction, lead small groups, work with students one on one, and assist with lesson preparations. The instruction delivered by partners is always highly intentional and catered towards students' individual needs. As a classroom teacher I brief our "college helpers" each morning on the events of the day. While our structure remains the same, there are always nuances which change—having a quick chat in the morning keeps everyone on the same page. As the year progresses, so does the day-to-day role of the partner. This is another area where daily communication is critical; if students are moving into a new skill, I or the site representative are there to explain the instruction model, and provide ongoing support to ensure the partner is set up for success.

I attribute a great deal of student learning to the collaborative efforts of this partnership. I recall an instance where a student that was struggling with letter identification was assigned to work with a Partner for ten minutes a day to practice this targeted skill. After a short time, this student's letter recognition abilities doubled. It has been a pleasure working with some of



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the same partners year to year and watching them develop personally and professionally. I have seen so much growth and development in the partners' communication skills, leadership skills, and overall confidence level.

When I asked my students what they liked about our college helpers, 18 of the 22 students shared statements that equated to "they help me learn." Student responses validate the partners' work in support of the whole child. Many students alluded to safety and support from strong statements, such as "I feel really safe around our college helpers, and they always help me when I need help. We just raise our hand and they help us", to more simple but still important statements, such as "They help us zip our jackets." While the day-to-day support has become an integral part of our routine and instruction, our college helpers have also left lasting impressions on our students by planting the seed of going to college. As stated by one of my students, "They help us with something that we need and our college helpers always give us compliments. I can't wait to be a college student". The Partners for Learning program reinforces this desire by annually bringing students from Discovery Charter School to the college for "Discover Nazareth College Day." Over the past five years the kindergarten children who have worked so closely with "college helpers" visit the college as third, fourth, fifth, and sixth-grade students. They tour the campus with their 'college helpers', see dorm rooms, the cafeteria, meet student athletes and have conversations with college students about going to college. We are grateful to be a part of a collaboration that supports our daily instruction at such a critical juncture in our students' academic career, as well as fosters relationships and organically inspires our students to see themselves as a future college student.

## **Student Leadership**

The Partners programs utilize a progressive student leadership structure. The programs are staffed by student program coordinators who work with the Associate Director for Civic Engagement at the top level of program administration. Experienced students serve as Site Coordinators working to ensure that the programs at each site are running effectively on a daily basis. Transportation Coordinators assist with the maintenance of six college minivans that transport the college students into the community each day. An Assessment Coordinator works with the Staff Coordinator to develop assessments, analyze data, and develop reports and recommendations for

program improvements. All of these students come together to form a council that ensures the program is meeting its goals, troubleshoots program challenges, and provides vision for the future of the programs. Leadership training, coaching and mentorship by peers and Nazareth staff and faculty members as well as support from community partner professionals, enhance the knowledge and skills of the students.

The Site Coordinator's responsibilities include:

- serving as a liaison with teachers, administrators, and Partners assigned to each site;
- aiding in the orientation of new Partners to their site building and to their cooperating teachers/staff;
- assisting in planning, making placements, and ordering materials; and
- taking an active role in leadership for daily activities at the sites, i.e., reflecting, planning and troubleshooting.

The Assessment Coordinator's responsibilities include:

- working with the Associate Director for Civic Engagement to develop, administer, and analyze assessment data;
- working with the Associate Director for Civic Engagement to map assessment questions onto program, division, and college outcomes; and
- creating Partners semester-based outcome reports, presenting findings to the Partners Council, and facilitating the development of a plan to address report results.

The Partners Council Member's responsibilities include:

- working with the Program Coordinator and Student Coordinators regarding staffing assignments;
- reviewing and updating the goals, orientations, workshops, and handbooks for the program;
- working together to resolve problems concerning Partners;
- sharing communications with Coordinators, Partners, teachers, and administrators as appropriate; and
- supporting each other by offering suggestions, highlighting outstanding work, and providing creative insights on how to improve leadership skills.

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Rebecca Englund, one of the authors of this paper, has served in multiple roles over her four years at Nazareth College, including as Partner, Assessment Coordinator, and Site Coordinator. Below, she describes firsthand several of her experiences within the program:

My work as a Partner constantly kept me on my toes because no day was exactly like the previous one. Initially, I thought that I would simply be a tutor for struggling students, but I was wrong. In addition to being a tutor, I was also a leader and mentor in the classroom. More specifically, I led small groups, worked one-on-one with students who needed additional support with their schoolwork, and supported the classroom teacher during whole class instruction. In turn, I built a great rapport with the students and became a positive role model in the classroom. These relationships made coming to work worthwhile because I truly cared about the students' successes. Even though every day was unpredictable, I knew that my work in the classroom allowed my classroom teacher to do her job more effectively, which reflected positively in the student's academic performance.

It is without a doubt that I became a more competent professional because of my work as a Partner. Having this hands-on experience at DCS alongside my schoolwork allowed me to implement ideas and methodologies discussed in my courses. For example, leading a phonemic awareness group gave me the opportunity to practice my scaffolding skills as well as my ability to teach to different learning styles. Ultimately, I benefited from this experience just as much as the students, the teachers, and the administrators at DCS. Although I motivated my students to do their best schoolwork, they pushed me to do my best work and think outside of the box.

As Assessment Coordinator, I evaluated the outcomes of the PFL program from both the Partner and administrative perspectives. In other words, I assessed how the PFL program influenced the Partner's professional development as well as how it influenced the students' academic performance and aspirations. Once I identified the major themes related to the program outcomes, I assembled a summarizing report and presented it to the PFL Council. This presentation generated a dialogue among council members to address the program considerations. As the Assessment Coordinator, I worked diligently to convey the overall impact of the PFL program and to make suggestions regarding the future of the program.

The role of Assessment Coordinator made me a better Partner because I became more knowledgeable of the PFL program's outcomes and expectations. As a result, I took more initiative in the classroom and gained more confidence in my work. Additionally, I developed the ability to think critically and the ability to advocate for my students and myself. I was privileged to have such a unique opportunity because my responsibilities as Assessment Coordinator allowed me to sharpen many professional skills and gain a better understanding of the PFL program.

In the Site Coordinator position, I served as the liaison between the Partners and the PFL administration (the PFL Council, the Associate Director for the Center for Civic Engagement, and the Site Representative). Not only did I communicate with all of the parties involved, but I also collaborated with my fellow Site Coordinators to troubleshoot when problems arose at site, to plan site meetings; and to lead workshops. I felt like the eyes and the ears of the PFL program along with the other Site Coordinators because no other position worked as closely with the teachers, the students, and the PFL administration.

Strong interpersonal communication skills and adaptability were essential to being an effective Site Coordinator. At times, it was challenging to negotiate several personalities and work styles; however, it served as great preparation because my future profession will require me to work with fellow employees and with clients. Although I had more responsibility as a Site Coordinator, I gained practical leadership experience that will suit me well as I enter the workforce.

## Conclusion

When identifying successful components of a service-learning community engagement collaborative, clearly defined roles are critical. The highly collaborative partnership between DCS and PFL would not function effectively if it were not for the four critical roles which work in tandem to foster program success: (1) the Associate Director for the Center for Civic Engagement, (2) the Student Site Coordinator, (3) the Site Representative, and (4) the Classroom Teacher. Dividing the programmatic tasks into these positions provides a supportive experiential learning environment for college students and ensures that our collaboration meets our community outcomes. This administrative structure ensures that college students can supportively

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apply their academic training in real-world situations, learn professional skills, and develop leadership capabilities. The structure increases the capacity of teachers to support students in an elementary classroom through the support of college students, and it supports the Elementary School striving to achieve their educational goals. These four critical roles provide an efficient, effective network that enhances experiential learning collaborative partnerships.

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# Integrating High Impact Practices: Recognizing Attributes and Overcoming Obstacles in Learning ePortfolios

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**ABSTRACT.** In the era of educational accountability, the push to document and demonstrate student learning increases exponentially. Creating opportunities for students to evidence their learning and, more broadly, the value of a college education, is critically important to both internal and external higher education stakeholders. While ePortfolios are an increasingly common tool used to provide evidence of learning, little is known about their effectiveness in assessing integrated learning experiences. The Bailey Scholars Program, an interdisciplinary, self-directed, student-centered learning community at Michigan State University, fosters creativity among faculty and students. The program explores innovative approaches to documenting and assessing learning that are responsive to student needs for life after the program while also being attentive to the uniqueness of a self-directed learning environment. One approach taken by the program is the community-wide use of ePortfolios. In this article, we argue that learning ePortfolios are a high impact practice that has the potential to change the ways students and programs partner to demonstrate and document student learning. We identify issues to take into account when adopting ePortfolio technology, and we include discussion of the attributes of ePortfolios that document both the learning and the obstacles students face while they are using ePortfolios.

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## Introduction

Helping students demonstrate their learning is of critical concern to both internal and external higher education stakeholders. Therefore, creating opportunities for students to document their learning is important, particularly within the critical climate surrounding the value of a college education (Leonhardt 2014). Within experiential-based education, student documentation of the processes and the products of learning can be varied and unpredictable (M. Schwartz 2016). The variability of experiences resulting from the increased use of experiential-based teaching strategies and learning perspectives raises further concerns regarding the value of education. As more higher education programs utilize experiential learning as a method of instruction rather than a theory of how people learn, intentional measures of assessment need to be developed. These method-oriented assessments should be better aligned with content or process learning outcomes, which often differ (Kwong 2013).

Powerful assessments are strategies to evaluate and engage students in the learning cycle. In addition, powerful assessments invite students to use multiple methods of assessment as tools to empower reflective, critical learning (Perrone 1991; Anson & Brown 1991). These assessments could produce a better understanding of the interrelationship between gains in student learning and experiential learning teaching processes, thereby decreasing the concerns over whether colleges are achieving their espoused teaching and learning goals through experiential learning.

As changes in teaching and learning practice occur, colleges and universities will ultimately engage in institutional change processes in ways that align with their institutional and programmatic values (Thornton, Ocasio, & Lounsbury 2012). At Michigan State University (MSU), undergraduate programs are integrating experiential-based teaching as a method to fulfill requirements of the newly adopted Undergraduate Learning Goals (Associate Provost 2017). This initiative has led to the adoption of student learning ePortfolios as an assessment practice to demonstrate and document learning. However, there are no silver bullets to solve the variety of problems associated with documenting and demonstrating student learning. ePortfolios, while potentially powerful tools that can make learning visible, also have their limitations, or as we describe them, attributes and obstacles.

## Research Context

MSU is a large, public, research-intensive institution offering over 200 programs of study within 17 degree-granting colleges. The majority of the student population consists of in-state enrollments and the university has experienced growth in international student and domestic student of color population (Michigan State 2016). The Liberty Hyde Bailey Scholars Program (henceforth, the program or BSP) is a non-residential academic learning community housed within MSU's College of Agriculture and Natural Resources. The program is open to students of any major, and students earn a minor in Leadership in Integrated Learning. Representing 51 majors and 11 colleges with 65% students of color (as compared to 18% overall at MSU) and 42% first generation college students, the program is the most diverse at MSU. The program encourages individual growth and exploration with the aspiration of achieving whole-person development ("Bailey Scholars" 2014).

With respect to the curricular aspects of learning, the program emphasizes both curricular and co-curricular aspects of learning by requiring students to take a sequence of three undergraduate core courses guided by the principles of self-directed learning (Hiemstra 1999; Knowles 1975; Roberson 2005). These three courses provide students the opportunity to develop a course of study, determine the course learning outcomes, and develop an assessment plan of their learning. Faculty and graduate fellows convene the core courses, and students within the course are referred to as co-learners. The learning outcomes for these courses are designed to enhance student capacity in multiple dimensions; these include intellectual development, such as the ability to work well with others, the capacity for ethical decision-making, and the ability to solve problems.

To stimulate whole-student development, the program requires students to complete additional educational experiences driven by the pedagogy of critical education (Keniston & Gerston 1972). Through critical education, the students seek experiences to develop their professional and personal learning journeys that focus on five critical questions: Who am I? What do I value? How do I learn? What is my worldview? and How do these connect? These criteria are met through documented credited experiences (often other academic courses) and co-curricular experiences.



An ongoing requirement for all program participants is the documentation of their individual learning journey (core courses, co-curriculars, and learning integrations) throughout their tenure in the program. The program has always required this documentation to be presented in the form of a physical portfolio; however, considering the changing landscape of technological growth in higher education, students found this requirement in its original form limiting. The physical copy of the student learning portfolio captured specific moments in time, typically the summative result of their learning. With a technology platform, students can document various points of time engaged in the learning cycle.

Additionally, with the diffusion of electronic information, the modes in which students learn are also often digitized. Technology yields opportunities not only to enhance the collection and representation of artifacts of learning but also to afford digital spaces or modes of connecting to learning spaces and collaborators beyond the borders of a classroom, campus, or community. Even though the intended learning outcomes may stay the same, the extension of resources available about any given subject, as well as how students experience information, changes. The process of learning itself, in an era of technological access, may differ from learning in traditional environments and inputs. Affording students the opportunity to learn in new ways through varied digital technologies can lead to more efficient ways for them to experience and document learning (Draves 1997).

Lastly, because reflection is often used as a summative tool and typically takes the form of a written synthesis of the student learning experience, it does not change how a student conceptualizes learning while learning is occurring. A physical portfolio does not allow for peer feedback nor does it capture reflective thought that emerges throughout the learning cycle. By contrast, a virtual space where students can reflect upon their learning in live time and receive feedback shared from their peers could ultimately create a change to the intended learning cycle.

The program administration partnered with student leaders to explore options to document learning processes, methods, and outcomes via learning ePortfolios maintained on learning management systems. The adopted learning ePortfolio requirement took into account the self-directed theoretical foundation of the program and the technological

preferences and abilities of program participants. During the 2014 spring semester, the program adopted Digication<sup>1</sup> and began implementing learning ePortfolios in the three core courses as a pilot program.

After the initial pilot, the program's Faculty Learning Community (FLC) obtained feedback from students about their use of ePortfolios via survey and class discussions. The FLC analyzed this feedback during weekly meetings in order to provide recommendations for future implementation. The majority of feedback from the pilot was implemented the following year. In the fall of 2015, ePortfolios became a program requirement for all program participants—students, faculty, and staff. As a follow-up to the pilot and implementation of feedback, the FLC designed a study to better understand student perceptions of the learning processes utilizing ePortfolios. Specifically, the FLC explored documenting and housing artifacts, interacting virtually with co-learners throughout the learning cycle, and utilizing an ePortfolio platform as a resource. This study focused on two main themes: student-reported attributes of using ePortfolios to document learning, and obstacles students face during usage. How these student perceptions affect learning outcomes, the role of faculty, and the cycles of reflection are discussed throughout this paper.

## Review of Literature

Recently, the Association of American Colleges and Universities (AAC&U) identified the use of ePortfolios as a high-impact practice (HIP), or “institutionally-structured student experience inside or outside of the classroom that is associated with elevated performance across multiple engagement activities and desired outcomes” (Watson, et al. 2016). Students participating in HIPs are reportedly more proactive in their educational experiences and tend to apply and reflect on what they are learning, and this application and reflection deepens and integrates their learning experience.

Across institutions, the ePortfolio serves diverse purposes and requires institutional leadership to set clear goals for its use (Tosh, et al. 2005). For example, a traditional teaching portfolio may highlight program learning outcomes demonstrated by student summative work. However, HIP ePortfolios should be self-directed by the student and highlight the process

of their learning. With this type of ePortfolio, the student takes responsibility and leadership of their experiences and determines how to document their learning. Since they are learning with and from their co-learners, course conveners, and faculty instructors, the ePortfolio becomes a live, virtual tool that makes ongoing reflective thought visible and open for feedback. Learning with and from one another are social interactions described as social pedagogy practices (Bass 2017). These pedagogical practices foster students' ability to construct and communicate understanding for an authentic audience. The feedback coming from multiple perspectives may alter how students conceptualize, process, and apply the learning content (Watson, et al. 2016).

With the adoption of the HIP learning ePortfolio, educators hope that students will harness the opportunity to author their own learning by selecting their own work examples, writing thoughtful reflections, and exceeding the requirements of their program to foster lifelong learning (Baxter Magolda 2008; Hiemstra 1999). Educators may assume that students understand the need to balance self-direction and appropriate help-seeking during the process of learning and documenting that learning (Baxter Magolda 2008). However, students often do not have this understanding and may need more detailed guidance in their metacognitive processing related to the development of their ePortfolio (Fadel, Bialik, & Trilling 2015). Because of their assumptions about self-directed learning, educators often neglect to plan properly for integrated framing and reflection (K. Schwartz 2016).

Furthermore, the HIP learning ePortfolio can look unfamiliar to undergraduate students and can be confusing to students when combined with their engagement in other HIPs (Watson, et al. 2016). For example, many first-generation college students or underserved student populations could find the concept of a HIP learning ePortfolio unfamiliar (Finley & McNair 2013).

Motivating students to develop a HIP learning ePortfolio may be challenging because, during the K-12 experience, portfolios (paper or electronic) are more commonly used as a teaching and assessment tool. This type of usage emphasizes a portfolio as a placeholder where students can submit work based on teacher discretion rather than a place to document formative learning across curricular and co-curricular experiences as would be seen in

a HIP learning ePortfolio (Chatham-Carpenter, Seawel, & Raschig 2010). Effective HIP learning ePortfolios should be embedded in the curriculum and not stand-alone tools that solely capture student reflection of experiences. Quality HIP learning ePortfolios capture the diverse backgrounds of students and are a platform where the students can make meaning of and document their experiences. Artifacts can capture student inquiry, problem solving abilities, and T-shaped boundary crossing competencies (Amber 2000). In order to maximize the benefits to students, faculty should provide guidance to them and implement technologically-based pedagogical strategies to motivate and educate users about the effective use of HIP learning ePortfolios.

With the integration of technology and education, learning ePortfolios have been viewed as an authentic assessment tool. As a result, more universities and programs have begun to require ePortfolios (Mayowski & Golden 2012). In 2012, the Association for Authentic Experiential and Evidence-Based Learning (AAEEBL) documented a visible shift in ePortfolio usage from early adopter, grassroots, and pilot programs to broader institutional or departmental programs as ePortfolios became an increasingly valuable tool in experiential learning (Brown, Chen, & Gordon 2012). With this shift, new inquiries arose surrounding the application and outcomes of using learning ePortfolios within those new contexts. Today, as ePortfolios are adopted as HIPs, questions continue to arise relative to the experience of users and ePortfolio implementation (Kuh 2008).

Many studies in the ePortfolio field have focused on beginning users, such as institutional adopters, and end users, such as prospective employers. Sometimes, institutions make assumptions about the current generation of college students as “digital natives” who have grown up with computers and the internet. However, these assumptions, which often drive the adoption of digital teaching and learning methods, are false (King 2016). In reality, digitizing teaching and learning practices (such as replacing the physical portfolio with the ePortfolio) actually results from new job demands and the need for these students to meet the reality of the “always on” modern workforce (Bersin 2014). Students are aware that they need to demonstrate proficiency to future employers, but they may be unaware of how it is best to package their learning in an ePortfolio (Yang 2016).

As market demands increasingly require evidence of learning beyond grades and resumes, the use of learning ePortfolios continues to grow exponentially as a method of assessing and exhibiting student learning and learning processes (Barrett 2007; Green & Golden 2013; Gulbahar & Tinmaz 2006). The rapid adoption of learning ePortfolios has occurred at a time when the collective anxiety about demonstrating student learning has increased. Thus, ePortfolios have been, and continue to be, important tools for documenting and demonstrating student learning. However, when considering the value of HIP learning ePortfolios, few studies focus on student perceptions of adoption and utilization (Parker, Ndoye, & Ritzhaupt 2012).

## Data and Methods

This project was a mixed-method explanatory study that captured student perceptions of ePortfolio platform usability and usage during the program through surveys supplemented with interviews. The study consisted of two phases, a quantitative and a qualitative.

## Data Collection and Analysis

In the quantitative phase of the study, we employed the use of an electronic survey to examine ePortfolio platform usability and explain how student usage captures learning during the BSP (Bailey Scholars Program). We distributed the survey to all active BSP students who had used an ePortfolio in at least one of the BSP core courses ( $n = 91$ ). Of these students, 89% responded to the survey, which was composed of twelve short-answer questions. Two of the questions confirmed eligibility to participate in the study and the remaining ten questions sought to understand the strengths and weaknesses of the interactions of students in using ePortfolios. To better understand this data, we employed the qualitative phase of the study.

In the qualitative phase of the study, we recruited participants from three BSP courses that used ePortfolios. To initially recruit participants, we first reviewed the student's ePortfolios to evaluate their ePortfolio usage. We used purposeful sampling (Patton 2005) of students based upon their ePortfolio usage and incorporation of content. After reviewing these learning

ePortfolios, we invited four students from each course section for interviews. Ten students (83%) agreed to participate. Of the ten participants, eight participants identified as female and two identified as male. Participant race/ethnicity consisted of two Asian, three Black or African American, and five Caucasian. All participants were between 18–24 years of age.

After students reviewed the informed consent and agreed to participate, we conducted forty 80-minute one-on-one interviews. We used the interviews to explore different aspects of the ePortfolio experience, such as digital presence, self-directed learning readiness, ePortfolio readiness, and peer feedback on learning ePortfolios. All interviews were audio recorded and transcribed verbatim. The initial review was done using Dedoose, where three of the researchers conducted a deductive process for analysis by reviewing and coding each transcript. After the initial review, the full research team discussed and finalized the coding scheme developed by the three reviewers. The team identified emergent areas and developed coding consensus that organized the data into three subgroups - attributes, obstacles, and opposing dialogues.

## Trustworthiness and Credibility

We followed Guba's (1981) criteria for assessing trustworthiness to evaluate high quality qualitative research studies: credibility, transferability, dependability, and confirmability. More specifically, we engaged in the following practices:

### *Credibility*

- We reviewed the interview questions for content, accuracy, biases, quality, and objective reasoning.

### *Transferability*

- We reviewed the interview questions to ensure that they did not involve broad claims that could have the potential to limit the interviewee and the reader's ability to connect the study questions with their own experiences.

### *Dependability*

- We conducted a dependability audit in which an outside auditor reviewed the activities of the research study to justify that the research methods we employed were credible and appropriate, and that our findings could be transferable to other scholars researching ePortfolios.

### *Confirmability*

- We were able to confirm that our interpretation of the data either supported or added to the scholarship about ePortfolios by connecting our findings to extant literature.

## **Limitations**

There are three limitations to this study. First, the study participants came from a purposeful sample and are not representative of the entire student population within the BSP or of the broader university. Second, because of the small population of learners in this specialized program, this study has a relatively small sample size and produced results representative of a population positively affected by the use of ePortfolios. Finally, the interview participants are members of a specialized, self-directed learning program and may not represent the typical student participating in postsecondary education.

Student performance is greatly influenced by active learner engagement in, responsibility for, and ownership of learning, which is supported by their reflection about the process and artifacts selected to document their learning (Eyon & Gambino 2017). All of the limits of this study may be heightened for the BSP population due to the inherent nature of being a self-directed learning program. It also consists of a large population of students from historically underrepresented racial and ethnic groups. Therefore, the results of this study may not be generalizable to a broader population of students or ePortfolio users.

## **Findings**

Many of the findings discovered about ePortfolio attributes and obstacles align with extant literature (Chatham-Carpenter, Seawel, & Raschig 2010; Light, Chen, & Ittelson 2011; Peet, et al. 2011). This section reports

findings from the study that affirm existing research; it also discusses tensions, or opposing dialogues, which arose between the programmatic goals of fostering self-directed learning and the skill-building necessary to successfully implement learning ePortfolio requirements.

## Overcoming ePortfolio Obstacles

Findings included obstacles that were defined as technological and non-technological barriers. These barriers, related to learning behaviors, have the potential to hinder successful and effective implementation of learning ePortfolios to assess student learning. Analyses of data identified five emerging themes: (1) compartmentalization, (2) copyright/intellectual property, (3) communication reluctance, (4) technological barriers, and (5) assumptions and expectations.

### *Compartmentalization*

An emergent pattern was students' desires to keep their personal and academic identities separate. Frequently, students indicated the use of ePortfolios solely to capture their learning surrounding their academic experiences, as opposed to linking or referencing connections to social media. For example, one student indicated compartmentalization in terms of various social media platforms: "Facebook is for non-academic purposes." Students indicated separation of their social media presence for multiple reasons; however, they most frequently cited privacy. They desired to keep their personal lives outside of academia for fear that their social media presence could be potentially detrimental to their grades and/or future employability. Another identified reason for compartmentalization was that students felt that particular software or applications should be used to complete specific tasks or purposes. One example was from a student who was an avid user of Pinterest. Their primary use of Pinterest was to organize social aspects of their life (e.g., wedding planning) as compared to organizing academic priorities of their life (e.g., physics notes). Overall, there was not a mindset of flexibility for students to repurpose certain software or application for new purposes. This lack of flexibility was also illustrated through students' resistance to use the university's learning management system (LMS) to socially engage with classroom peers, even though the LMS encouraged student interaction.



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### *Copyright/Intellectual Property*

Two main concerns emerged within the data: (1) visibility and ownership of students' ePortfolios and (2) the use of copyrighted materials. Students are required to make their learning ePortfolios visible to the rest of the program community. This programmatic decision was made during the process of adopting learning ePortfolios as a means for students to learn from and with one another as part of their learning. Course conveners encouraged reciprocity through the commenting feature embedded in the ePortfolio software. However, there was resistance and hesitation from students to share or post their work publicly in a "nebulous cloud."

Concerns related to questions of intellectual property also arose, such as "Who owns my work once I post it, me or the program?" "What if someone else in the class copies my work and uses it as their own?" And "How do I protect my ideas or work in this public forum?" These statements emphasize the overall lack of knowledge about the rules and norms of digital voice in ePortfolio usage. Additionally, students expressed concerns about copyright regulations. Students wanted to use multiple electronic sources creatively to enhance their artifacts, but they were hesitant. For example, some wondered, "What happens if I post a work of art or a song that I like as part of my reflective artifact without a citation?" "Will I get into trouble if I don't seek permission first?" And "Will I get a \$250,000 fine for posting excerpts from a movie without permission?" The lack of knowledge surrounding the legality of using certain materials was an obstacle for participant buy-in.

### *Communication Reluctance*

As noted in the previous section, the program strives to foster an environment where students learn from and with one another. To encourage this kind of learning in a virtual setting, the "commenting" feature of ePortfolios is used as a way for students to engage in dialogue. Since the learning ePortfolios are publicly viewable for all program community members, students were reluctant to communicate. This was notable through three main student fears: (1) fear of misinterpretation or of being misunderstood, (2) fear of being critical or critiquing others' work publicly, and (3) fear that constructive criticism or critique would violate or impede the artistic freedom and creativity of the creator. One student indicated, "I tried to be critical and ask questions about the reflection but [another student] took [my comment] a different way and became defensive. So now I'm less likely to comment on

their portfolio.” Other students perceived that their written comments on others’ ePortfolios were lost in translation. They expressed a preference for face-to-face, real-time dialogue to limit misinterpretation in the digital public platform.

### *Technology Barrier*

Another obstacle was student discontentment with specific components of the ePortfolio platform. Though commonly found among publishing platforms, students were unfamiliar with and frustrated by the multi-step process of saving and publishing created materials. Many students were irritated with the failure of their materials to appear live on their ePortfolio pages after they saved their content. This irritation was merely a result of students forgetting to take a final step of publishing the saved materials. The angst of students stemmed from their lack of familiarity in requiring additional steps beyond saving. Typically, they would not have to publish in software commonly used by students, such as Google Docs.

Most students expressed some difficulties with computer usage. One participant admitted, “Through my ePortfolio experience, I have learned that I’m very bad at using computers.” Others expressed that they encountered obstacles, including difficulties with software flow and lack of training or experience with the tools necessary to make a learning ePortfolio that authentically represents their learning experience. Comment functions within the platform posed another challenge as they were “often difficult to find,” which made it hard to “follow the conversations occurring between various comments.” These barriers meant that students did not always perform within the ePortfolio environment as well as they thought they could, particularly if they had stronger skills related to graphics, video editing, and computers in general.

### *Assumptions and Expectations*

When the program required learning ePortfolios as a component of the minor of study, a set of expectations was developed for the students to follow so that they could integrate ePortfolios into their learning to help document their cycles of reflection. For example, one expectation in three of the courses was to integrate the use of a learning ePortfolio in all aspects of the learning cycle. So, while syllabi in the courses were created collaboratively by all learners, students felt limited by the requirements surrounding ePortfolios in terms

of their creative expression and documentation of learning. Moreover, in some courses, students were required to make a minimum number of posts or comments on co-learners' posts. Even though posting requirements were collaboratively established by co-learners, they often distracted from creative or multiple modes of communication, which are possible within learning ePortfolios.

Digication integrates a range of media options (i.e., video, picture, diagram) which can be uploaded at the click of a button. However, students indicated a preference for using more familiar and simplistic modes of communication (essay, narrative) to meet posting requirements in a seemingly more timely manner. Students' emphasis was on saving time, even at the expense of posting more preferred or creative options.

Additionally, some students made assumptions about the purpose of the platform's commenting feature, making direct connections between similar features on social media sites/mobile applications like Facebook or Instagram. Assumptions included similar functionality and engagement of the commenting features of the ePortfolio platform as a method to show "affirmation," "agreement," or "discontentment." This assumption shadowed the importance of the opportunity to learn from and with other learners throughout the artifact-reflecting portions of the learning cycle. Students also failed to use the commenting feature as a place to share critical and constructive feedback to their co-learners.

## Recognizing ePortfolio Attributes

For this study, attributes or "possibilities" of learning ePortfolios were also identified as factors that contributed to the successful and effective implementation of ePortfolios. Attributes that emerged were (1) transferable technology skills, (2) learning interdependence, and (3) technology for learning.

### *Transferable Technology Skills*

A pattern emerged from participant interviews linking the skills for using the ePortfolio platform as transferable from skills developed using other existing online platforms. Supporting this link, students expressed a range of comfort levels with documenting ideas electronically, indicating variability

in the frequency of digital space usage (e.g., number of hours a day) and the number of digital space platforms. The students who stated that transferring their skills was easy described themselves as “tech-savvy” or “digital-aged.” Participants indicated the use of multiple social media platforms, including Facebook, Instagram, Pinterest, Snapchat, and Twitter. Participant use of multiple social media platforms and large amounts of time spent on social media reinforced many students’ abilities to transfer their skills to the ePortfolio context.

### *Learning Interdependence*

All co-learners within the program’s community are required to make their learning ePortfolios visible to the entire community, including those in their classes. The goal of this sharing was to encourage peer-to-peer learning to enhance the learning cycle. One student indicated “once I had a chance to survey and review my peers’ ePortfolio, I would go back and redo my portfolio to improve on some features I liked in my peers’ portfolio.” Students highlighted the usefulness of a collaborative approach to creating learning ePortfolios, discussing issues like photos and videos as well as depth and quality of reflective practices. Relying on others’ ePortfolios to generate ideas for their own posts demonstrated interdependence in the learning process. Also, participants described interdependence in troubleshooting difficulties with the ePortfolio platform by consulting with peers who experienced and overcame similar challenges. Finding inspiration in the work of others and seeking peer assistance with technological difficulties were positive attributes that increased learning interdependence.

### *Technology for Learning*

Participants in this study identified many attributes of the use of a learning ePortfolio as a technology to support learning and engagement. Though some students found certain features within the ePortfolio platform to be rigid and prohibitive (e.g., commenting), they also viewed the technology-related challenges as opportunities to learn. Students shared some important contributions regarding the ePortfolio platform with Digication to enhance and refine the quality and value of the platform (e.g., improved dialogue between students online). As a response to student suggestions, improvements were made by Digication for ease in usability, including the addition of new commenting and tagging features, and features specific to the programmatic

context. For example, one participant suggested that a “string comment” function, in which one comment could be attached to a reply, would foster a more continuous and sustained dialogue among co-learners. The majority of students shared a strong sentiment that improvements in the ePortfolio technology would greatly enhance their learning, create positive spaces to foster co-learning, and facilitate learner engagement.

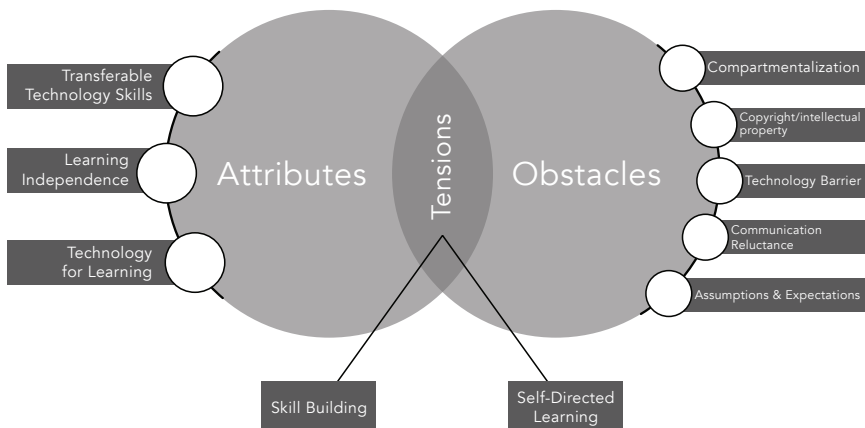
## Opposing Dialogues Between Obstacles and Attributes

Though identified obstacles and attributes of ePortfolio usage were salient throughout the interview data, tensions arose within individuals and co-learners, primarily around the issues of self-directed learning and skill building (see Figure 1).

### *Self-directed Learning*

Most students identified themselves as self-directed learners with direct statements such as, “I am a self-directed learner”, “I’m very self-motivated” or “I’ve taught myself along the way and eventually figured it out.” Students positively attributed the learning ePortfolio as an opportunity to creatively,

Figure 1. ePortfolio attributes and obstacles identified in the program



independently, and collaboratively portray and reflect on and share their learning experiences within a private, yet public, platform. Furthermore, students highlighted the opportunities of being able to review and edit their work within their ePortfolio, reflect on the process of articulating their learning in a single location, and interact with the work of their peers. Students found the ePortfolio platform to be a more useful tool for integrating their self-directed learning as opposed to their experience with other learning management systems.

However, while students directly identified themselves as self-directed learners, they had difficulty providing specific examples in which the learning ePortfolio enhanced self-directed learning or deepened their reflective processes. This was attributed to the lack of motivation to self-direct their learning of how to use ePortfolios effectively. One student elaborated, “It’s not hard [learning ePortfolio]. . . . It was easy, but in a way, I would have loved to learn by having someone teach me everything.” This student indicated that while they were motivated to learn how to use the available tools, they preferred additional guidance on how to improve their ePortfolio skills. Other participants lacked the motivation to explore ways to improve their ePortfolio skills. Even though Digication offers a help desk and multiple online tutorials, some students did not utilize these self-directed methods to improve their ePortfolio skills. Therein lies the tension between self-directed learning and the ePortfolios of these students. Though students identified themselves as self-directed, and highlighted the usefulness of an ePortfolio for learning, these same students were not motivated to seek assistance or independently explore options to maximize their use of ePortfolios.

### *Skill-building*

Another tension that surfaced surrounded skill-building. Even though students identified strong technology skills and social media presence, they lacked ability or motivation to transfer those skills to the learning ePortfolio. A perfect example is when one student argued an inability to upload an image to their ePortfolio despite the multiple images they uploaded onto Facebook. Another example is students’ resistance to learn how to transfer skills used and implemented in a face-to-face class environment to the online learning spaces. “I’m not very comfortable and not very good at this [working in online spaces],” indicated one student, who was typically a vocal leader throughout the core classes. Students’ comfort and confidence in working

in online spaces influences their capacity to build skills specifically related to learning ePortfolios.

Despite these limitations, many students recognized the accumulation of skills from using multiple platforms as providing applicable skills in other contexts such as an ePortfolio. For at least one participant, this skill-building was an ongoing process: “I’m beginning to connect my learning by transferring the knowledge I obtained from one platform to another platform.” The ability to transfer existing knowledge and build new capacities for working within a learning ePortfolio became an important aspect of the implementation process. This transferability fosters comfort and skill-building necessary to engage with the mechanisms in a learning ePortfolio developed to help students cultivate lifelong, sustainable skills.

## **Discussion and Implications for Research and Practice**

Through this study, we identified five obstacles in the ePortfolio implementation process: compartmentalization, copyright/intellectual property, communication reluctance, technology barriers, and students’ assumptions and expectations. We also identified three attributes of ePortfolios: technology transfer skills, learning interdependence, and technology for learning. Within these categories merged two tensions: self-directed learning and skill building. We found that overcoming the obstacles and strengthening the attributes requires prior planning and learning from both the instructors and students. We recommend that educators allocate time to assess students’ understanding of the learning cycle and their actual technological skills prior to the introduction of the ePortfolio. By conducting assessment of these skills, educators can better understand actual technological ability and be able to construct and scaffold guidance and teaching surrounding desired media expectations for ePortfolio use.

### **Technology Skill Building**

Having transferable skills does not always equate to students being able to effectively integrate those skills within an ePortfolio. To put it in context, it is similar to students being familiar with the individual applications of Microsoft Office<sup>®</sup> such as Word, Excel, and PowerPoint but not being able to integrate the interconnected functions of each program to present a

completed presentation, report, or portfolio. Moreover, while the majority of today's college students are digital natives, technology is ever-evolving. The applications we perceive students to be comfortable using because they have had a long shelf life (i.e., Facebook) may not be the applications that students are using today. To meet student's requests to not have to learn an entirely new technological platform, the program decided to choose an ePortfolio that best resembled commonly used social media applications. However, instructors failed to recognize the possibility that not all students fully understand how to use popular social media programs, nor did it consider if the associated applications were used by the student population. For example, when an instructor referred to the process of posting a comment in the ePortfolio as being the same to posting a comment on Facebook, students could not relate to this analogy stating, "We don't understand. Facebook is for our parents." This disconnect often left students feeling frustrated with having to learn and use the new platform.

Therefore, it is imperative that instructors allocate time in their courses to provide clear guidance and structure to intentionally teach how to engage in the learning cycle while reviewing and engaging in the various functions within the ePortfolio platform and model usage and application. This scaffolding can be conducive for developing student skills and abilities to transfer their technological skills and best accommodate student learning preferences.

### *Copyright*

Existing literature identified some obstacles in using ePortfolios, such as technology barriers (Meyer & Latham 2008; Tosh, et al. 2005). Our findings represent new issues to consider when planning to implement programmatic ePortfolios, particularly issues of copyright and compartmentalization. For example, instructors could integrate a lesson on licensing with students to clarify any concerns about copyright and intellectual property as a part of implementation. Additionally, instructors could emphasize institutional policies and expectations for copyrighting, citing, and plagiarism, as should be outlined in course syllabi. As technology becomes the norm within higher education, many universities have established intellectual property policies and resources to guide instructors and students. Stemming from this study, another suggestion is for instructors to adopt or to create a quick reference guide that highlights how to cite most commonly used artifacts which may be used in student learning ePortfolios.



### *Software*

Software, like most forms of technology, has a limited shelf-life. There is a need for upgrades and improvements, or it can quickly become outdated. While ePortfolios are not new, there has been a tremendous increase in the number of applications one can use to develop an ePortfolio. As an educator, it is beneficial to consider thoroughly why a particular ePortfolio platform is able to best meet programmatic needs and support student learning. There is no one best solution to support learning via ePortfolios; however, there is value in adopting a platform that is responsive to both educator and student needs as they evolve over time. We not only encourage practitioners to solicit ongoing feedback from students about the tools they are using, but to share that feedback with software developers of the selected platform.

## **Build Understanding of Reflection in ePortfolios**

When considering the assumptions and expectations surrounding student ability to use a learning ePortfolio, it is essential to discuss, define, and clarify common jargon that may not seamlessly transfer in a digital world. For example, *commenting* in a majority of social media platforms is viewed as an affirmation or informal communication method versus a more formal, constructive, and reciprocal function within an ePortfolio. Another example encompasses the word *reflection*. Every so often, when discussing what reflection means to students, it is quite variable, with definitions of summative, formative, or personal insights, or reiteration of activities or actions. However, through the learning ePortfolio, the role of reflection engages thoughtful perspectives on the learning process, inputs for learning, artifacts of learning, thought processes, or other steps in the learning cycle.

To encourage ongoing reflection throughout the learning cycle, we recommend that the instructors provide clear guidelines and prompts for students. Specific guidance strengthens the process of reflection and encourages students to move beyond documenting the *what* to a more descriptive account of the *how, why, when, where, and what is next*. Reflection, then, is realized as an embedded process throughout the learning cycle. With access to an ePortfolio, the reflection process can be relayed through multiple modes (i.e., video, text, photos).

## Social Pedagogy of ePortfolio

Students compartmentalize their online behaviors into two main boxes—social and academic. Most students indicated that sharing and having a virtual social presence is a normative behavior in social platforms but were resistant to and questioned the value of sharing their academic online presence with others outside the institution. This belief can contradict established learning outcomes for ePortfolio use as an integrative social pedagogy. While students acknowledge the value of receiving authentic feedback, their comfort with openly sharing beyond their secure classroom is still a factor preventing them from communicating their reflection and academic learning. Students have been instructed over time to censor their internet presence and to maintain a professional image. This discretion affects student comfort in presenting learning as unpolished or as a work in progress.

Through effective planning, educators can intentionally facilitate and encourage interdependent learning amongst their students. When developing a learning ePortfolio in isolation, we found that students do not typically engage with peers for guidance or feedback. However, engagement changed when approaches were defined to explain the how and why of peer-to-peer and community-based interaction within an ePortfolio. With greater understanding of the purpose of interactive functions, students felt more comfortable embracing interdependent interactions and were more willing to share practices and work with others to support learning.

Another suggestion to help students overcome this perspective is to discuss the purpose of a learning ePortfolio in comparison to other portfolios, such as a professional portfolio, and to establish community expectations for sharing and feedback. Additionally, instructors can establish methods with students to assess and document learning outcomes using reflective practices in a virtual setting. Clarifying the importance of a social core can foster student comfort to reflect on and co-create learning within a virtual community space that is not solely public or private. It is also important for instructors to guide students on how to share with external audiences to invite valuable feedback.

## Self-Directed Learning with ePortfolios

One of the main objectives of our program is to foster self-directed learning and whole-person development. Our courses are designed to provide a space where students can choose what they want to learn, how they want to learn, and how to best assess their learning. While the ePortfolio is useful as a virtual space to capture these learning experiences, students also claimed that the integration of technology became a barrier in the learning process. Removing this barrier moving forward will require additional guidance from instructors about creating successful, virtual self-directed spaces. In a large number of traditional college courses, instructors purposely think about how and when to teach to achieve student understanding. They are aware of when to use different modalities to encourage comprehension. This is typically a foreign concept for students that becomes even more confounded in a virtual platform. Assisting students with the functionality of the ePortfolio and learning in virtual spaces can increase learning outcomes and student framing of the learning design (i.e., a student knows when to listen to and share a Ted Talk lecture to further understanding).

As a result of this study, we have identified three recommendations for future research. First, we encourage continued exploration of student motivation to engage in the what and how of self-directed learning when using ePortfolios. This exploration increases understanding about how students engage in metacognitive processes in ePortfolios. Next, given the sustained interest in implementing learning ePortfolios, it is essential to better understand best practices to deepen students' engagement with ePortfolios. This is particularly important if documented artifacts will be used to assess the quality of student learning at a given institution. Finally, a further understanding of the transferability of technology skills could enhance how educators approach effective implementation of and maximize learning through ePortfolio use.

## Conclusion

Within the era of educational accountability, the push to document and demonstrate student learning increases exponentially. Creating opportunities for students to indicate learning, and ultimately the value of a college education, is critically important to both internal and external higher education stakeholders. In this paper, we argued that learning ePortfolios are a HIP practice that has the potential to change the ways that students and programs partner to demonstrate and document student learning. While prior literature identified several issues to consider in ePortfolio implementation processes, we identified additional issues for consideration. When adopting ePortfolio technology to capture and enhance student learning, ePortfolios can be powerful tools for some students or barriers that impede learning for others. This study reinforced this dichotomy. Educators should be aware of these attributes, obstacles, and tensions when adopting ePortfolios. Awareness to action can only enhance student learning using the learning ePortfolio.

## Note

1. Digication is a widely used ePortfolio platform that can be used in a variety of ways; within our program, the primary purpose is for students to create learning ePortfolios to reflect on and document their learning. Digication can also be an assessment tool and course management software.

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# A University and Middle School Mentor-Scholar Partnership

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**ABSTRACT.** The State University of New York at Oswego (SUNY Oswego) and the Oswego City School district have created a campus-community partnership through a college program that matches SUNY Oswego students as mentors with at-risk youth in grades 7 and 8 in a structured environment in the school district. The structure is academically based for college students to earn credit based on the tenets of mentoring, youth development, and relationship building. The middle school students, or “mentees” come from an at-risk background that is academic, socially, or behaviorally based. The school district recommends students for inclusion in the program. This innovative program includes a course that is rich with the pedagogy of service-learning, builds leadership characteristics and teamwork through course discussions, workshops, and the mentor-mentee relationship. The community benefits with increased support to at-risk students and building a pipeline between the college and K–12 community. The Mentor-Scholar Program tracks K–12 impact through state assessments, grades, social-school success outcomes, college mentors course evaluations and grades. The program tracks the impact on college students through grade assessment and reflection. The program was formed five years ago and has grown from thirty mentors with sixty mentees to 120 mentors with 300 mentees this past semester. Initial research shows an increase in attendance and GPA for K–12 students enrolled in the program and leadership skill development for college students.

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## Introduction

The focus on the impact of mentoring and the benefits it provides to mentor, mentee, and the community at large has increased in recent years (Bayer, Grossman & Dubois 2015). Many models have had a high impact on communities, but there is not a functional model that incorporates widespread use, university-level pedagogy, and practical application of best practices. This article highlights the SUNY-Oswego Mentor-Scholar Program over a five-year period, and illustrates how the initiative brought stakeholders from the school district and campus community together to form a mutually beneficial relationship with reciprocity and shared investment as a base.

The literature documenting mentoring programs has increased steadily in recent years. The Mentor-Scholar Program is groundbreaking, as it encompasses academic and social support for district participants while creating credit-bearing experiences for university students that allow them to mentor in rural, city, and suburban school districts. This program fills a void: it can be replicated and scalable for both the universities that will be providing mentoring services and the school districts that will be receiving them.

## Background Information

To understand the background of the SUNY-Oswego Mentor-Scholar Program, it is important to appreciate first the cultural context which led to the program's formation. Many issues present in the Oswego community had deeply rooted social causes. The official poverty rate in 2014 in the United States was 15%, and in the city of Oswego, New York, it was 28.1% (U.S. Census Bureau 2016). To further analyze these issues, their causes, and their possible solutions, the United Way Community Needs Assessment (UWCNA) committee was founded.

In 2010, this committee identified a myriad of issues plaguing the Oswego community. To address these issues, a community task force was created that included stakeholders from local businesses, the chamber of commerce, the local government, the Oswego City School District (OCSD), and the State University of New York (SUNY) at Oswego. The needs

assessment identified widespread unstable family structures as a major issue in the community, which led to various other barriers. The term *instability* is often used in social science research to reflect change (Sandstrom & Huerta 2013). Children thrive in stable environments where they have a routine and their basic needs are being consistently met. Economic, employment, family, and residential instability all have serious impacts on children (Massachusetts Dept. 2008). The needs assessment identified unstable family structures as a high contributor to a negative view of education for youth and lack of social attainment. In the Oswego City School District specifically, this viewpoint has manifested itself in the form of low graduation rates.

The task force decided to focus on ways to support struggling students who lacked access to positive role models as well as those who could create trusting and supportive relationships. SUNY-Oswego President Deborah F. Stanley and acting OCSD Superintendent William Crist agreed that a partnership which allowed undergraduate students to work in a collaborative manner with “at risk” district students was one component of addressing these issues. As the talks between OCSD and SUNY Oswego leadership progressed, the Mentor-Scholar Program was created.

The charge for the Mentor-Scholar Program was to positively impact high school graduation rates. To create a program grounded in leading research in the field, a partnership with New York Campus Compact and AmeriCorps Volunteers in Service to America (VISTA) was established. In 2011, an AmeriCorps VISTA was granted to SUNY Oswego to start researching the fundamental groundwork for the program. The program would be targeting seventh- and eighth-grade students, as this is a critical transition period for many students, and it was believed that delaying interventions until high school would make altering a student’s fundamental views of education too difficult.

In establishing a mentoring program, it was argued that a tutoring program had too refined a focus. The program would have to include students who are traditionally high-performing academically but may struggle with behavior or social issues stemming from poor family dynamics, as well as students disinterested in academic pursuits. A solely academic-based intervention would create a one-dimensional view of impacting students and would leave a high volume of students underserved within the community.

## Literature Review

Higher education students who participate in mentoring are shown to have increased cognitive development, personal growth, and involvement in civic engagement. Recent research shows that college students who serve as mentors also have increased empathy. Empathy is defined as the ability to "walk in another's shoes." Julie Novak, Vern Markey, and Mike Allen (2007) conducted a meta-analysis that indicated college students who took service learning courses experienced greater application of knowledge and skills across settings than students who did not take service learning courses.

The Mentor-Scholar program is an ideal model to support the growth of empathy and learning in service learning students in higher education. Service learning courses provide a platform for students to develop empathy as the students participate in an organized service activity that meets identified community needs. In this instance, SUNY-Oswego students experience the social issues of middle school students first hand and begin to understand the impact of poverty and a lack of role models in the family home.

Robin Everhart (2016) developed a pilot study that researched empathy development in service learning classes. Research supported developing empathy-focused teaching tools to improve student empathy. This research is of particular importance to the Mentor-Scholar program as students often begin a class with preconceived beliefs about different upbringings and socioeconomic backgrounds. By developing empathy, students may resolve conflicts in their beliefs by rethinking attitudes and notions that will lead to greater acceptance of diversity, and the ability to scaffold their studies with a multitude of communities.

When creating the structure of the Mentor-Scholar Program, a variety of program designs were evaluated. The model was adopted after intense research of Big Brothers/Big Sisters due to the similarities in the two demographics incorporated: SUNY-Oswego undergraduates acting as mentors and OCS D participants acting as mentees (Herrera, et al. 2011).

Strong research supports the need for formal mentors and natural mentors. Our steering committee adopted an approach to bring formal mentors into the school setting to ensure a level of training, accountability, and consistency in programming for both cohorts of participants. We continued this structure in the afterschool setting to allow for direct faculty support at sessions following strong feedback from our community partner.

The Mentor-Scholar Program philosophy believes that creating strong and trusting relationships between mentor and mentee will lead to higher performance in a variety of areas. “Students who have close, enduring mentoring relationships tend to have higher academic achievement, improved social relationships, and enhanced self-worth” (Ben-Eliyahu 2015). As mentees come to trust their mentors, they practice positive academic skills while also learning important strategies for emotion regulation, which is a vital component to their social development. “Mentors are extrinsic emotion regulators, whose strategies and techniques are internalized by the mentee over the course of the relationship.” (Ben-Eliyahu 2015).

## Model

The Mentor-Scholar Program follows a replicable and scalable model for student participation. All mentors are matched one-to-one with an “at-risk” student. These students are identified as “at-risk” due to district concerns about their academic, behavioral, or social growth. Once a cohort of students has been identified by district contacts, the Mentor-Scholar Program meets with the student to foster interest and encourage the student to apply. This process requires close collaboration with community partners and stakeholders, as each student and family may have different perceptions of support and goals for participating. Once a student applies, the Mentor-Scholar Program removes any identifiable information from the application results and shares the information with the cohort of undergraduate mentors. The mentors then use this application information to select the mentee with whom they would like to work. Mentors are given preference because this allows for matches to be created based on academic proficiency or shared interests. The only time the Mentor-Scholar Program will create a mentor-mentee match will be in the event of extreme student need and an ideal skill set in a mentor who can address that need. For example, a mentee may be a refugee or immigrant from another country, so the program will match that mentee with a mentor who may be fluent in that mentee’s native language. District students are not discouraged from applying if they are experiencing academic or social success, but the Mentor-Scholar program will place a priority on those students who display the highest needs first. In the event that there are more applications than mentors, a waitlist has been implemented.

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For a typical mentoring session, undergraduates meet in teams on-site at the Oswego Middle School. Familiarity with the building reduces barriers to participation for district students and faculty. Mentors arrive immediately following daily school dismissal and separate into teams following the structure outlined at the middle school. In this instance, the student body is subdivided by grade and by teams representing various directions, such as “7 South, 7 West, 7 East, etc.” On each team, the students meet within that day’s supervising teacher’s classroom, where there are mentors. These mentors are matched one-to-one with mentees as well as a “Team Leader,” who can address any issues while facilitating sessions. The Team Leader is a returning mentor assigned to a team of mentor-mentee pairs to serve as support rather than to create a relationship with an individual student. In the event of an issue, the Assistant Coordinator for the program is present at each session while there is also an administration liaison who the Assistant Coordinator can bring issues to, if necessary.

To provide structure to mentoring sessions, each session is subdivided into academic and social portions. In after-school meetings from 2:30–3:20, the first 30–35 minutes are dedicated to academic support. The academic support provided to each mentee will be extremely individualized based on the needs of the student. Sample activities include working on that day’s homework, academic goal setting, binder and locker cleanup, creating notecards, and rewriting class notes. At the start of the session, each mentor is provided with a copy of the student’s grade report, which highlights any missing assignments, teacher comments, upcoming projects, etc. This is used by the mentor and mentee to set mutually agreed-upon goals for that week of sessions. Each mentor-mentee pair will meet twice a week following a format of Monday and Wednesday sessions for seventh grade and Tuesday and Thursday sessions for eighth grade. On a monthly basis, the Team Leader will hold a conference with both the mentor and mentee during a session to check on the progress of each mentee and provide direction on a more appropriate academic focus if necessary. Mentors can sometimes be reluctant to drive students toward areas of academic deficiency, as the mentee may be opposed to working on that area due to their struggles and their desire to impress their mentor. For example, a mentee may persuade the mentor that they should work on math homework at that afternoon’s session even though the mentee struggles in other content areas.

Mentors can be apprehensive to go against the mentee's wishes for fear of harming the relationship or lack of confidence in redirecting the mentee if they become frustrated. The Team Leader conference is an institutional support established to correct this issue.

At the conclusion of the academic portion, the Team Leader is responsible for facilitating a social activity. This may be a "free period" in which students are able to take advantage of playing cards or board games. On a day when the Team Leader has created specific activities, the team will participate. The activities Team Leaders create are vetted by the Program Coordinator prior to facilitation and are aimed at encouraging reflection from all participants while building each mentor-mentee relationship. These may include collage activities such as, "What does success look like to me," "Values Bingo," etc.

## **Program Hierarchy**

One of the components of the Mentor-Scholar Program that makes it truly unique is its structure. The program has a complex hierarchy that is replicated at the university and district levels. This hierarchical structure allows for increased transparency between partners and increased ways for interested individuals to become involved at different levels of commitment. The table below presents a breakdown of the program's administrative structure. (Note that "GST 311" is a SUNY-Oswego course described in detail in the next section.)

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District	University
<i>Mentees</i> - Students who complete an application to participate	<i>Mentors</i> - Students who are receiving credit through GST 311
<i>Cooperating Teachers</i> - Paid district employees to assist with supervision of program - Provide undergraduates with context to academic assignments	<i>Team Leaders</i> - Previous mentors who have been chosen for their exemplary skills to facilitate sessions and counsel their peers - Support GST 311 discussions
<i>Site Contact</i> - District person to address issues on a daily basis - Provide support with calendaring, field trips	<i>Assistant Coordinator</i> - Recruits district participants - Attends team meetings and is a bridge between campus/community - Assists with sessions and troubleshooting
<i>Principal</i> - Contact for faculty concerns - Assessment of program and goals	<i>Program Coordinator</i> - Recruits undergraduate participants - Assessment of program and goals - Long-term planning and program design
<i>Superintendent</i> - Budgetary and policy questions	<i>Director for Center for Experimental</i> - Budgetary and policy questions

## Accreditation & Pedagogy

SUNY-Oswego has a tradition of acting as a regional steward and increasing its students’ participation in the community. Community engagement serves as the foundation for creating a structured experience for students where they can receive academic credit for their learning while simultaneously impacting the community. A one-credit course was developed under the Center for Experiential Learning Department with a General Studies label and approved by University Governance. The course was assigned a 300-level designation, offering upper-division credit, due to the experiential component and commitment required of the students. Housing the course within General Studies avoided any confusion for students who may think the program’s required course is only for specific majors or may count in lieu of a course within their degree program. All majors and class years are allowed to participate in the program. The only requirements for acceptance into the program are enrollment in GST 311, the completion of an application and a formal interview.

The course, titled “GST 311 Mentor-Scholar Pgm,” requires that students attend four training sessions at varying times throughout the semester while

completing at least twenty hours of service. Student course meetings are for one and a half hours and take place every three to four weeks, depending on when the district calendar has breaks in instruction. Additionally, the gaps in instruction allow for students to partake in authentic learning experiences and apply course content within their matches while bringing new strategies and talking points to each subsequent course meeting as they develop their own best practices.

Mentor training and all course content is grounded in civic engagement and experiential learning principles. The course structure is based on Kolb's Cycle of Experiential Learning and the Deal Model for Critical Reflection, and it is infused with civic values, civic knowledge, civic skills, and civic action. The GST 311 learning objectives are focused on increasing the knowledge of students in youth development, community and civic engagement, identification of issues facing "at-risk" youth, critical reflection on the benefits of service to both provider and recipient, and the role that support systems such as the Mentor-Scholar Program play within the academic setting. The pedagogy associated with the course follows a traditional service learning format with content delivered in a blend of lecture and discussion. Course topics such as Carol Dweck's "Growth Mindset," Michelle Hayward's discussion of grit as a way to instill middle school students with the will to persevere as exhibited by Google's Steve Jobs, Howard Gardner's "Theory of Multiple Intelligences," boundary setting as defined in traditional mentoring between mentors and mentees, Erik Erikson's "Human Development Theory," and other content are presented to students in a format so that they learn the salient points. From the conversation on major points of multiple areas, students are then broken into teams which follow the teams they use on site. Within these teams, students discuss each topic area and share within their group how they can incorporate newly learned lessons and skills into their service. To provide guidance, each small group discussion is led by a Team Leader who can further break down content and relate to mentors how each principle can be applied in an individualized approach. This content overview is purposeful, as it is important to avoid overwhelming students with an abundance of content which will not be relevant on site, where mentors need to focus on the application of these principles.

The undergraduate mentors are not the only students required to enroll in a course to participate. SUNY-Oswego students serving in the Team Leader role must also enroll in a General Studies course to participate in the



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Mentor-Scholar Program. This course is GST 312 and is reserved only for Mentor-Scholar Team Leaders. In order to enroll in the course, students must have already taken GST 311 and completed an interview with the Program Coordinator. The learning objectives for GST 312 are that students will be able to demonstrate growth in leadership, set professional goals, troubleshoot situations, evaluate students and peers, and hone professional skills such as team management, professionalism, conflict resolution, assertiveness, and active listening. This course has a similar pedagogical structure as GST 311 with a few stark differences. The GST 312 course is two credits per offering and requires students to meet weekly for one and a half hours. The increase in credits and meeting time correlates to the increased level of responsibility demanded from these student leaders. Each Team Leader is assigned their own pod of mentor-mentee matches, with each pod ranging from eight to sixteen matches, and the Team Leader is tasked with supporting the matches on site and communicating program updates.

The GST 312 course includes a blend of seminar and discussion formats, and it focuses on leadership. Students discuss topics such as assertiveness, conflict resolution, situational vs. positional leadership, and others through the lens of their assigned service placement. The course framework aims at putting these topics into practice while Team Leaders are serving in the Mentor-Scholar Program and in any other leadership positions the student may currently fill. A large component of the course is the opportunity for each Team Leader to report on the status of their team and site while surveying their peers for support on various issues that arise throughout the course of the program. Peer discussion and review of best practices have been extremely valuable activities and are consistently highlighted as among the Team Leaders' favorite activities.

## Impacts

The Mentor-Scholar Program has created a rigorous assessment structure aimed at measuring district students' progress in four key areas: academics, attendance, behavior, and school connectedness. The program has had to cast a wide "assessment net" to be truly encompassing of the varied needs of district participants. Utilizing grades as the sole lens for measuring impact on students has been shown to tell only one part of the picture, as the program's function is to support student progress in both academic and

social components. This dual support coincides with the larger view of the Mentor-Scholar Program: that mentoring should maximize impact in many areas, as opposed to focusing on one specific area, and it should be based on each individual student's needs. Mentors in the Mentor-Scholar Program are instructed to transition away from student deficiency areas once the mentee begins to make progress, and mentor-mentee matches should continuously target new opportunities for growth. In other words, if a mentor is instructed to conference with a student on a low math grade, matches move to another academic area where the student is struggling once that math grade improves. This approach allows for the matches to expand, based upon best practices and momentum gained from academic progress, into additional areas.

To assess progress, a student's scores from a previous year serve as benchmarks for the student's work beginning in the new year. For example, sixth-grade scores serve as benchmarks for seventh-grade participants. This data is utilized to ensure that we are measuring program impact only against previously observed behavior to ensure that impact is isolated to that which stems solely from mentoring.

## **Impact: Academics**

The Mentor-Scholar Program utilizes two main components for tracking academic progress. The first is teacher-centered assessments and evaluations, and the second is STAR assessments. To track student progress via report cards and other measures, the Assistant Coordinator has been allowed access to a district-wide digital platform that houses student progress in a myriad of areas. Access to this system is vital to the Mentor-Scholar Program, as we share this information with mentors to provide targeted support/interventions and influence program design.

Listed in Table 1 is an overall breakdown of the academic impact the Mentor-Scholar Program has had on our 37 seventh-grade participants for the 2014–2015 program year. There is a slight increase in overall cumulative GPA for the cohort when measured against their sixth-grade benchmark. The interesting data point is the number of students who remained static or increased their grades from the previous year, as shown in Table 2. The average amount of growth for those students, 60% of the cohort, was six points on their cumulative GPA—the equivalent of two letter grades.

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<b>Table 1: 7<sup>th</sup> Grade Mentor-Scholar Participants in Program Year (37 total participants)</b>	Academics (Average cumulative GPA of participants)
Benchmark for 7 <sup>th</sup> Grade Mentor-Scholar participants (Participant 6 <sup>th</sup> Grade averages)	72%
Mentor-Scholar 7 <sup>th</sup> Grade participants in program year	73%
Oswego Middle School average for program year (if applicable)	N/A

<b>Table 2: 7<sup>th</sup> Grade Mentor-Scholar Participants in Program Year (37 total participants)</b>	Academics (Average cumulative GPA of participants)
Average cumulative GPA of participants	73%
Percentage of participants showing improvement in cumulative GPA or at 6 <sup>th</sup> grade average	60%
Average increase in cumulative GPA for those showing improvement	6%

Tables 3 and 4 continue to highlight the academic impact of the Mentor-Scholar Program on eight-grade participants. This cohort had varying ranges in participant attendance, with 60% of mentoring sessions attended identified as an appropriate benchmark to include the largest cohort available while considering realistic mentoring impact. It is important to note that the benchmark figure compared to total cumulative GPA of the participants did not show an increase, but those participants who did show growth saw an increase in their cumulative GPA of 4%. Unfortunately, many of the individual successes within this population are masked due to the high needs of individual matches. This can be an area for further study, as the appropriate metrics for documenting mentoring impact have been scrutinized (Rhodes 2016).

<b>Table 3: 8<sup>th</sup> Grade Mentor-Scholar Participants in Program Year (37 total participants, 23 with over 60% session attendance)</b>	Academics (Average cumulative GPA of participants)
Benchmark for 8 <sup>th</sup> Grade Mentor-Scholar participants (Participant 7 <sup>th</sup> Grade averages)	78%
Mentor-Scholar 8 <sup>th</sup> Grade participants in program year	78%
Oswego Middle School average for program year (if applicable)	N/A

<b>Table 4: 8<sup>th</sup> Grade Mentor-Scholar Participants in Program Year (37 total participants, 23 with over 60% session attendance)</b>	Academics (Average cumulative GPA of participants)
Average cumulative GPA of participants	78%
Amount of participants showing improvement or at average	52%
Average increase in cumulative GPA for those showing improvement	4%

### Impact: STAR Scores

The second component of academic progress the Mentor-Scholar Program tracks is STAR scores. STAR, which is originally the acronym for “Standardized Test for the Assessment of Reading” but is now also an assessment of skills other than reading, is utilized district-wide as a predictor of student performance on state assessments. The timing of this assessment correlates with the start and end of yearly programming, making it an ideal metric. One of the difficulties in tracking academic impact on district students is that instructional and collegiate schedules do not align, and this makes isolating mentoring impacts difficult as some mentoring periods do not coincide with the start and end of marking periods.

The two STAR assessments used in partnership with the Mentor-Scholar Program are the STAR Math and STAR ELA (“English Language Arts”). These assessments are both issued in the fall and spring semesters and provide a different lens to focus on mentoring impact. Utilizing solely a student’s academic scores through a teacher-facilitated curriculum poses issues in

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calculating and isolating mentoring impact, as there may be differences in the amount of homework given, the acceptance of late assignments, assessment types, student perceptions of teacher disposition, etc. The STAR data reflects student aptitude in academic disciplines void of such discrepancies.

Table 5 highlights the STAR scores in Math for the 2014–2015 seventh-grade cohort. An interesting data point is the percentage of students who showed improvement in these scores, 56%, and the average percent of their improvement, 25%. While the scores on the STAR assessment have no bearing on the student’s academic status within the district, it is a strong indicator of their anticipated performance and growth on state assessments.

Table 6 highlights the STAR scores for the 2014–2015 seventh-grade cohort in English Language Arts (ELA). 72% of seventh-grade participants show growth in this area, with an average increase in their scores from fall to spring of 28%. This growth can be reasonably attributed to students showing increases in self-confidence and expression through interactions with a positive role model.

Table 7 shows the 2014–2015 eighth-grade cohort’s growth on their STAR Math assessment. The Mentor-Scholar Program was unable to receive access to the scores of this cohort in seventh grade due to confidentiality reasons.

Table 8 demonstrates the 2014–2015 eight-grade cohort’s growth on their STAR ELA assessment. The Mentor-Scholar Program was unable to receive access to the scores of this cohort in seventh grade due to confidentiality reasons. As shown in the seventh-grade cohort numbers, there is a similarly high increase in the percent of eighth-grade participants who increased their STAR ELA scores by a considerable margin.

<b>Table 5: 7<sup>th</sup> Grade: STAR Data - Math (32 participants)</b>	
6 <sup>th</sup> Grade (Benchmark)	Test not issued
Amount of Mentor-Scholar 7 <sup>th</sup> Grade participants showing improvement on their Spring assessment when compared to their Fall assessment	18 (56%)
Average percentage increase for Mentor-Scholar 7 <sup>th</sup> Grade participants showing improvement on their Spring assessment when compared to their Fall assessment	25%
Amount of Mentor-Scholar 7 <sup>th</sup> Grade participants showing regression on their Spring assessment when compared to their Fall assessment	14 (44%)
Average percentage decrease for Mentor-Scholar 7 <sup>th</sup> Grade participants showing regression on their Spring assessment when compared to their Fall assessment	5%

<b>Table 6: 7<sup>th</sup> Grade: STAR Data - ELA (29 participants)</b>	
6 <sup>th</sup> Grade (Benchmark)	Test not issued
Amount of Mentor-Scholar 7 <sup>th</sup> Grade participants showing improvement on their Spring assessment when compared to their Fall assessment	21 (72%)
Average percentage increase for Mentor-Scholar 7 <sup>th</sup> Grade participants showing improvement on their Spring assessment when compared to their Fall assessment	28%
Amount of Mentor-Scholar 7 <sup>th</sup> Grade participants showing regression on their Spring assessment when compared to their Fall assessment	8 (28%)
Average percentage decrease for Mentor-Scholar 7 <sup>th</sup> Grade participants showing regression on their Spring assessment when compared to their Fall assessment	9%

<b>Table 7: 8<sup>th</sup> Grade: STAR Data - Math(19 participants)</b>	
7 <sup>th</sup> Grade (Benchmark)	Data Unavailable
Amount of Mentor-Scholar 8 <sup>th</sup> Grade participants showing improvement on their Spring assessment when compared to their Fall assessment	17 (89%)
Average percentage increase for Mentor-Scholar 8 <sup>th</sup> Grade participants showing improvement on their Spring assessment when compared to their Fall assessment	13%
Amount of Mentor-Scholar 8 <sup>th</sup> Grade participants showing regression on their Spring assessment when compared to their Fall assessment	2 (11%)
Average percentage decrease for Mentor-Scholar 8 <sup>th</sup> Grade participants showing regression on their Spring assessment when compared to their Fall assessment	2%

<b>Table 8: 8<sup>th</sup> Grade: STAR Data - ELA (17 participants)</b>	
7 <sup>th</sup> Grade (Benchmark)	Data Unavailable
Amount of Mentor-Scholar 8 <sup>th</sup> Grade participants showing improvement on their Spring assessment when compared to their Fall assessment	12 (71%)
Average percentage increase for Mentor-Scholar 8 <sup>th</sup> Grade participants showing improvement on their Spring assessment when compared to their Fall assessment	24%
Amount of Mentor-Scholar 8 <sup>th</sup> Grade participants showing regression on their Spring assessment when compared to their Fall assessment	5 (29%)
Average percentage decrease for Mentor-Scholar 8 <sup>th</sup> Grade participants showing regression on their Spring assessment when compared to their Fall assessment	13%

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The disparity between the increases in Math and ELA scores is interesting and a topic the authors encourage for future research. Initial thoughts are that the undergraduate mentors are able to provide a higher level of support to areas of ELA due to their familiarity with subject matter and that the skills needed to be successful in ELA match closely with the skills that mentors use in their own academic pursuits at the university level. Conversely, the initial theory for the lack of similar growth in areas of STAR Math scores is that, as a result of the shift in K–12 Math curriculum to Math A, Common Core, etc., the transition has made it increasingly difficult for mentors to support mentees in this field, as the content is taught in a marginally different fashion.

## **Impact: Attendance**

One of the pillars of the Mentor-Scholar Program is positively impacting the attendance of district participants. Increasing school attendance has been a priority for OCSD and institutions throughout New York State. The Mentor-Scholar Program tracks attendance for all participants, not only in sessions attended, but also in instructional days attended.

Table 9 documents the impact that the Mentor-Scholar Program has had on 2014–2015 seventh-grade participants' attendance totals. The Mentor-Scholar Program has been able to keep district students at their benchmark for attendance at 171 instructional days attended. Participant attendance has been counted twice in this chart as our participants are also included in the Oswego Middle School's average attendance rate of 168 days attended. When comparing the attendance of participants from sixth grade to seventh grade, 43% of participants have increased their average attendance by an additional four days attended. This is a remarkable figure; it represents that some students are attending school for almost an additional week of instructional time.

Conversely, Table 9 also reflects that 57% of the 2014–2015 seventh-grade cohort have shown a decrease in attendance. To further expand on these figures, these numbers are taken solely on a quantitative scale and do not reflect the difficulties that some district students have experienced on an individual scale. Taking this into account, although many students may be missing traditional school days, they have attended on average 87% of mentoring sessions. In other words, students may still be missing a considerable number of instructional days, but they are attending school on the days there are mentoring sessions.

Oswego Middle School Average during program year (Instructional days attended)	168 (93%)
Mentor-Scholar 7 <sup>th</sup> Grade participants average instructional days attended in 6 <sup>th</sup> Grade (Benchmark)	171 (95%)
Mentor-Scholar 7 <sup>th</sup> Grade participants average instructional days attended in program year	171 (95%)
Amount of Mentor-Scholar 7 <sup>th</sup> Grade participants showing improvement in instructional days attended in program year when compared to instructional days attended in 6 <sup>th</sup> Grade	15 (43%)
Average increase in total instructional days attended for 7 <sup>th</sup> Grade Mentor-Scholar participants showing improvement in program year when compared to average instructional days attended in 6 <sup>th</sup> Grade	4 additional days attended
Amount of Mentor-Scholar 7 <sup>th</sup> Grade participants showing regression in instructional days attended in program year when compared to instructional days attended in 6 <sup>th</sup> Grade	20 (57%)
Average decrease in total instructional days attended for 7 <sup>th</sup> Grade Mentor-Scholar participants showing regression in instructional days attended in program year when compared to instructional days attended in 6 <sup>th</sup> Grade	7 additional instructional days missed
Percentage of Mentor-Scholar sessions attended by Mentor-Scholar 7 <sup>th</sup> Grade participants showing regression in instructional days attended in program year when compared to instructional days attended in 6 <sup>th</sup> Grade	87%

Table 10 documents the impact that the Mentor-Scholar Program has had on the 2014–2015 eight-grade participants’ attendance totals. The Mentor-Scholar Program has been able to keep district students at their benchmark for attendance at 171 instructional days attended. Participant attendance has been counted twice in this chart, as Mentor-Scholar participants are also included in the Oswego Middle School’s average attendance rate of 168 days attended. When comparing the attendance of participants from seventh grade to eighth grade, 35% of participants have increased or stayed at their average attendance, whereas 65% have indicated a decrease. While this is a negative, the increase in negative attendance has not significantly impacted mentoring attendance, with overall mentoring attendance for this cohort at 81%. An important aspect to note with the attendance figures highlighted above is that the average instructional days are counted quantitatively and do not leave interpretation for those students who have had unforeseen challenges, such as injuries, illnesses, etc.



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Oswego Middle School Average during program year (Instructional days attended)	168 (93%)
Mentor-Scholar 7 <sup>th</sup> Grade participants average instructional days attended in 7 <sup>th</sup> Grade (Benchmark)	171 (95%)
Mentor-Scholar 8 <sup>th</sup> Grade participants average instructional days attended in program year	171 (95%)
Amount of Mentor-Scholar 8 <sup>th</sup> Grade participants showing improvement in instructional days attended in program year when compared to instructional days attended in 7 <sup>th</sup> Grade	4 (20%)
Average increase in total instructional days attended for 8 <sup>th</sup> Grade Mentor-Scholar participants showing improvement in program year when compared to instructional days attended in 7 <sup>th</sup> Grade	4 days**
Amount of Mentor-Scholar 8 <sup>th</sup> Grade participants showing no change in instructional days attended in program year when compared to instructional days attended in 7 <sup>th</sup> Grade	3 (15%)
Amount of Mentor-Scholar 8 <sup>th</sup> Grade participants showing regression in instructional days attended in program year when compared to instructional days attended in 7 <sup>th</sup> Grade	13 (65%)
Average decrease in total instructional days attended for 8 <sup>th</sup> Grade Mentor-Scholar participants showing regression in instructional days attended in program year when compared to instructional days attended in 7 <sup>th</sup> Grade	4 additional instructional days missed
Percentage of Mentor-Scholar sessions attended by Mentor-Scholar 8 <sup>th</sup> Grade participants showing regression in instructional days attended in program year when compared to instructional days attended in 7 <sup>th</sup> Grade	81%

### Impact: Behavior and School Connectedness

The additional areas tracked in the Mentor-Scholar program, including behavior incidents and school connectedness, are still being developed in partnership with the OCSD. One of the challenges to tracking such areas is a lack of uniformity throughout the district, within buildings, and among individual staff regarding what constitutes a behavior-related issue and how such issues should be tracked. This challenge extends to school connectedness because of the subjective nature of the content. Surveys are being developed which will allow for students to self-report before and after participation in the program. However, more comprehensive metrics can be developed. The authors advocate that the area of behavior and students’ perception of comfort within the school is an area in need of additional study.

## Conclusion

The continued scrutiny in the field of K–12 education has led to innovative and dynamic ways to impact youth. Research has shown that to positively impact youth, there need to be strong relationships between a child and an adult (Grossman 2015). As this research continues to find more support, the field of mentoring will grow along with it. To ensure that we are meeting the needs of diverse and unique students, diverse and unique solutions must be developed. School-based mentoring programs address these issues while creating new avenues for investment in the success of communities by including stakeholders who previously have not been involved in the K–12 education process. It is imperative that mentoring programs support students and are structured in effective and mutually beneficial ways to avoid negative impacts on students. It is with this goal in mind that this article was published and submitted to further expand the field of mentoring.

The Mentor-Scholar Program is unique in its structure and origins. The climate that has led to its creation and sustainability may have been original: the program had a university president and superintendent come together with a shared vision of success for all participants. However, regardless of this ideal situation, the roadmap created by Mentor-Scholar is one that can be replicated and shared across rural, urban, and suburban locales. As more districts face shrinking budgets, larger class sizes, and overwhelmed teachers, the role of programs such as the Mentor-Scholar Program becomes paramount. Of course, there is much left to explore and research. More universal studies are needed on best practices that holistically support student growth outside of the academic arena. There needs to be more clarity on which behaviors can be impacted through having a student mentor and how to streamline that impact. While these areas are still being explored, the Mentor-Scholar Program model and partnership outlined here can help to act as a guide.

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# Project IICE: Inspiring Interdisciplinary Collaboration Experiences

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**ABSTRACT.** Project IICE was a multi-disciplinary learning experience designed for students at Southern New Hampshire University. Students worked together in teams to communicate scientific data that was initially collected by an Introductory Botany class. Students in this course measured trees and recorded variables, including tree height, diameter, species, and canopy cover. They shared the data with students in freshman Statistics courses, who analyzed mathematically for trends. Finally, students in Graphic Design used the data to create visual representations and icons. Students collaborated in groups that were randomly assigned across all of the courses to include members of each discipline. During the process, each student was required to help others in the group understand the meaning of the data, through the collection, analysis, and design phases. In the final group poster presentations, students explained the meaning and value of each part. The emphasis was on their ability to communicate the significance of each part of the process, which helped them appreciate how the discipline they were working in contributed to the overall success of the project. The real-world data provided a context for students to experience working in cross-discipline teams, and sharpened communication skills.

## Introduction to Project IICE

Interdisciplinary collaboration, although commonplace among research groups comprised of faculty or industry members, does not come easily to a typical student. Some students' collaboration and time management

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skills, as well as professionalism, may fall short of academics' and employers' expectations. Yet the ability to work in a team, become an expert on a portion of a project, and communicate with people with a variety of knowledge levels is exceedingly important for today's graduates.

Our goal with the creation of Project IICE (Inspiring Interdisciplinary Collaboration Experiences) was to develop a way to marry interdisciplinary research, experiential learning, and cross-classroom experiences. IICE projects are designed to require specific skills learned in the classroom setting as well as practical skills required in the workforce. Project IICE exposes student participants to a variety of learning methods and encourages them—and in some cases requires them—to step outside of their comfort zones in order to complete their projects. This report follows our fall 2015 experience of utilizing Project IICE for the proposal of an arboretum on our campus.

Project IICE is founded on three core tenets, and IICE projects must include all three of the following items:

1. **Interdisciplinary Topics:** Students who see a variety of topics outside of a single course are better prepared to synthesize information.
2. **Collaboration:** Students who are required to collaborate on projects are better prepared for the workforce and the demands of team projects.
3. **Experiential Learning:** Students engaged outside of the classroom are more prepared for the “real-world” application of their course work.

The motivation behind Project IICE is the recognition that no career exists in a bubble. To prepare students for post-degree careers, as an institution, we should present post-degree tasks in a low-stakes learning environment to our students. Under the direction of faculty, students should encounter “real-world” constraints and challenges during their time in college to allow them to make mistakes and grow without the threat of job termination.

## **The Arboretum Proposal Project (TAPP)**

### **Project Overview**

Southern New Hampshire University (SNHU), located in the city of Manchester, is in the process of constructing residential, administrative, and academic buildings on campus. In addition to its focus on the functionality of

these buildings, SNHU is also concerned with the aesthetic and environmental appeal of the campus overall, as well as the use of all facets of the campus for educational purposes.

As a way to beautify the campus while conserving some of the few remaining forested acres near Manchester and also to make a useable outdoor laboratory space for students and faculty, a student named Michael Weinstein, in 2014 approached the university about designating a portion of the campus as an arboretum. He completed an undergraduate research project to investigate the viability of an arboretum on SNHU's campus in light of future construction. Upon graduation and receiving a paid position on campus in 2015, Weinstein and several faculty members from different disciplines banded together to develop an interdisciplinary, cross-course project (The Arboretum Proposal Project, or TAPP, for short) to present data to members of SNHU Facilities and Administration in support of the creation of an arboretum on a tract of campus land.

Students from six courses—three introductory statistics courses, a botany course, a graphic design course, and an environmental ecology course—were placed in a group, with each group comprised of several statistics majors, a science major, and a graphic design major. The groups were tasked with gathering, analyzing, and presenting data as both written reports and posters throughout and at the conclusion of the semester. Each group member was considered an “expert” in their field and was responsible for being able to explain any portion of TAPP, including collection and analysis of data, and design choice, to other members within their group as well as to an outside audience.

## Initial Setup

Students in the six courses were assembled so that each group contained a science student from either the botany or the environmental ecology course and a graphic design student. Each group also contained members from each of the statistics course sections.

Groups were presented with the overall problem of justifying the creation of the arboretum on campus. TAPP was designed in such a way that a course would meet its required learning outcomes while simultaneously embedding material into the other companion courses. Each course would then contribute

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to the overall knowledge base of the student groups, with a member of the course acting as the TAPP expert. All students were given an initial overview of the project, while each instructor was responsible for developing appropriate assignments to meet course objectives and supplementing pertinent aspects of TAPP.

## **Data Collection, Analysis, and Visualization**

To develop a solid footing for TAPP, leading to the ultimate goal of a formal proposal, students in the botany and environmental sciences courses collected data regarding the proposed arboretum space. Within the first three weeks of the semester, students, especially those in the botany class, could be found in the proposed space gathering data using instruments (e.g., clinometers, densitometers, and tape measures) and apps (e.g., iNaturalist). Students gathered data on tree size, species, age, health, and canopy cover, and they categorized that data in tabular form. They also chose a series of plots (sections of land) in the proposed arboretum and divided each plot along transects to sample the entire proposed space. Each science student was assigned transects and a series of variables to measure.

With the collection of data completed by the third week, the science students handed their raw data to their statistics teammates. The statistics students, in collaboration across sections and using the science students' understanding of how the data were collected, developed a method to best summarize key variables. For the purpose of consistency across final projects, the instructors chose four required variables for analysis. Some groups chose to look at additional variables to supplement their findings.

In the last third of the semester, the graphic design students received results from the data analysis for incorporation into an infographic. The final design of the infographic needed to be scalable so that information could be incorporated into both the required poster and the final report. The graphics students created icons for each variable modeled, and the overall infographic was informed by the results of the analysis completed by the statistics students.

In addition to summarizing and representing the data across all plots, each group was required to choose a plot that was the best representative of the entire proposed arboretum. In the spirit of collaboration, all members of the group were required to have input into this choice, with the ultimate

goal of using this decision to “tell a story” about the arboretum as a whole. Specifically, the science and statistics students were essential in describing the data collection and analysis to inform the design student’s visualization.

## Final Presentation

Each team of students presented their findings at a poster session in the last week of the semester. All members of each team were required to be able to explain the data, analysis, and interpretation to an audience comprised of peers, faculty, and SNHU facilities and administration. Both faculty and peers graded the posters, and the final overall score included a self-assessment component. Included in the appendix are images of the final infographics created by design students.

## Student Feedback

A major goal of the introduction, completion, and overall success of Project IICE is student/faculty buy-in. With TAPP, the goal was no different. The ideas behind TAPP were conceived over the summer before the fall semester it was implemented, but details about the project were developed as the semester progressed. This timeline led to significant frustration for some students, namely those who were first-year students taking statistics as a required course for their (non-mathematics) major. Feedback from these students included the concern that they were doing “too much work” compared to students in other sections of statistics classes. All statistics sections at SNHU required projects as part of the final course grade, but many of the non-TAPP projects were done individually and did not require the degree of collaboration or “outside-the-box” thinking associated with TAPP.

The graphics design and science students were typically sophomore-level and above, and the objectives of TAPP aligned more closely with their majors. Many science students remarked that the process of gathering data was “one of the best class experiences [they] have had so far” and that the process affirmed their choice of major (in one case, a middle-school science education major). In a survey gathered before the final poster presentation, a divide between these groups of students—those who could immediately see applications of skills learned in TAPP and through the Project IICE process, and those who



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could not—became very apparent. Common student comments included, “Overall, I liked the idea,” and “The project is for a good cause,” but some students found group collaboration difficult: “I don’t know why I was doing what I was doing.”

This points to an important lesson learned by the TAPP team throughout the semester: unless the professors were on the same page going into a portion of the assignment, the students would not see the value of the assignment. Many students commented on the apparent lack of cohesion among faculty members; even if the faculty understood the overall project, students felt it wasn’t communicated clearly. The TAPP team, in some cases, was developing particular assignments during the course of the semester in response to feedback from students, and this led to some inconsistency and miscommunication.

Even though the post-semester surveys indicated that students held, overall, a neutral position on the project (with the exception of the apparent lack of cohesion discussed above), anecdotal evidence gathered in the final poster session suggested otherwise. For some groups, the final poster session was the first time the students understood what other members of the group contributed, and more importantly, how those contributions had an impact on their own tasks. The presence at the poster session of the director of SNHU facilities and the Provost, among others, visually indicated to students that TAPP was important to the university, and more directly, that people cared about the work they did. Several students expressed regret that they didn’t meet with their groups earlier or visit the data collection sites with the science students to understand where the data came from and why the site was important.

## Lessons Learned and Future Directions

The most ubiquitous student feedback about TAPP was about the perception of organization and cohesion. Students in each class understood their individual assignments but did not always see the larger implications of TAPP as a whole. Although the discrepancy between lower and upper level students was most apparent in the understanding of the “bigger picture” of TAPP, we think the final “aha” moment was worth it for the first-year students. The incorporation of upper-level courses, specifically statistics,

would change the flavor of the final result; students may be able to go deeper into the analysis to tease out a different picture of the arboretum. However, the first iteration of TAPP showed us—both as faculty and as an institution—that if you expect great things of students, great things can result.

Through the tireless efforts of Michael Weinstein and several others on campus, SNHU has been awarded a Level I Arboretum designation for a tract of land utilized in TAPP. The arboretum is already the subject of numerous classroom assignments, with courses including science, graphic design, game design, and information technology. Specific assignments include using the space as inspiration for an augmented reality project and as a nature backdrop for video projects.

## **Project IICE: Steps for Application**

Those wanting to propose a Project IICE idea must follow four steps in the application process. The primary and most important step is to determine the logistics necessary to aid completion of the project. In the case of TAPP, use of the proposed arboretum land tract required permission from individuals in administration and facilities. In addition, the project required that one of the instructors assume the role of project manager for the data collection portion of TAPP so that questions about the arboretum could be funneled to a single person rather than having them directed to multiple people.

Second, interdisciplinary collaboration requires that courses be paired. If at all possible, learning communities or courses with a similar meeting time are best for IICE projects, as students placed in groups across classes can then have a common schedule. Coordinating schedules is not always possible or essential, however; most courses in TAPP were not scheduled in the same time block, or even on the same day, and this did present some difficulties for students in TAPP. However, IICE is designed to mimic “real-world” experiences in which not everyone can meet at the same time and location. TAPP students quickly discovered alternate ways to meet or discuss ideas, specifically through the use of online forums.

Third, the desired project must be planned thoroughly and in detail. Roadblocks should be anticipated, and preparation should be made to work around them. Also, faculty involved in each class serve students better if each course instructor understands not only the larger interdisciplinary idea but

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also the specific assignments that other instructors are giving to students. With the implementation of TAPP, it was essential that the botany professor was aware that the graphic design students needed to know the type of data that was collected in order for them to create icons; likewise, the graphic design professor needed to be aware of what the science students were expected to know regarding the project. Although neither faculty member is required to disseminate the cross-information to their students, as knowledge of all course information is ultimately the responsibility of the student groups, each faculty member could use the background knowledge to encourage and guide students in their individual classes to participate more fully and successfully in their groups.

Finally, a successful IICE project must have meaning for the students. If students can see the immediate applicability of the project and how it relates to their interests, they are more likely to be invested in it. Previous SNHU projects in the IICE program included a weeklong competition for the design of an environmentally friendly aspect of a future residence hall on campus. With this project, the winning team presented at Undergraduate Research Day, and they presented to leading members of the SNHU facilities and architectural design team. Students involved in this project were able to see immediately why the project was relevant—it had a “real-world” application—and were invested in the project because it related directly to their future aspirations. TAPP was created in a similar vein. Although many of the TAPP students will graduate before the arboretum becomes fully functional, the recognition of the arboretum by a national organization gave credibility to the project.

## Conclusion

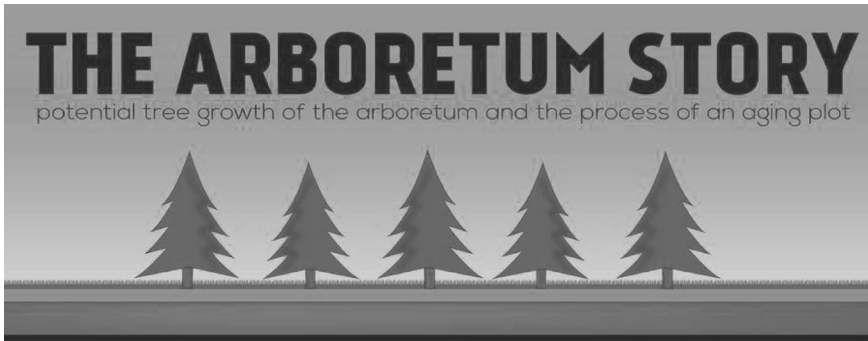
The Project IICE framework pilot resulted in several substantial and constructive takeaways. First, while faculty and staff buy-in is high, student buy-in is not necessarily guaranteed. Feedback from the pilot program indicated student confusion and lack of understanding about the “big picture” of the project. Future application of the IICE framework should thus incorporate additional student training and team building mechanisms for the purposes of enhancing understanding of overall project goals and class contributions to those goals.

Second, the pilot program demonstrated that outcomes from initiatives are indeed impactful to the on-campus community and administration. Highly visible and meaningful results can be expected from application of the Project IICE framework to initiatives for which these results are desired.

Finally, outcomes have shown that Project IICE applications can and should be agile, robust projects that utilize best practices and incorporate lessons learned from previous undertakings. While no two projects can be expected to have similar outcomes, the framework's adaptability can, with proper application, result in truly meaningful outcomes.

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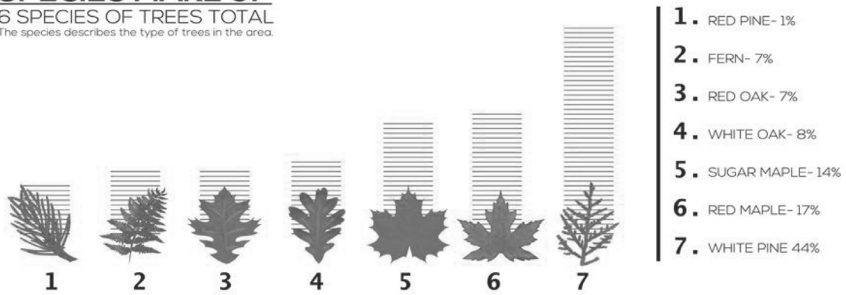
## Appendix



### SPECIES MAKE UP

6 SPECIES OF TREES TOTAL

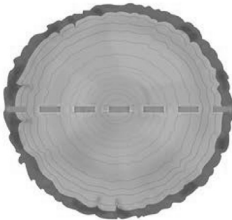
The species describes the type of trees in the area.



### DBH

DIAMETER AT BREAST HEIGHT

The diameter at breast height was found by measuring around the tree above the base. The DBH will be summarized by finding the average number of all the DBH data represented.



AVERAGE DBH: 9.49 Inches

### HEIGHT

HEIGHT OF TREES (FEET)

The height represents the height of a random sample of trees. The height will be summarized by finding the average # of all the tree heights, the data represented.



### CANOPY COVER

AVERAGE PERCENTAGE

34.36%



### GROUND COVER

LEAF LITTER..... 60%  
 DEAD..... 24%  
 HERBACEOUS PLANT..... 17%  
 TREE..... 9%  
 SHRUB..... 8%

# ARBORETUM PROJECT

## HEIGHT

We calculate the heights of the trees using three different methods: Eyeball Estimation, Cheap Clinometer, and Expensive 'Fancy' Clinometer. All angles were taken 10 ft. away from the base of the tree unless they were otherwise indicated.



## SPECIES

These are classified using categorical labels for the trees which were found in a guide book using estimation, such as: Pine, Fern, White Oak, Sugar Maple, Red Maple, Red Oak, Birch, and White Pine.



## DBH

(Diameter at Breast Height) – DBH is calculated at 4.5' above the base of the tree. A measurement can only be used in our data if the tree has at least 6" for its DBH. As DBH gets smaller, the height of the tree tends to also shrink.



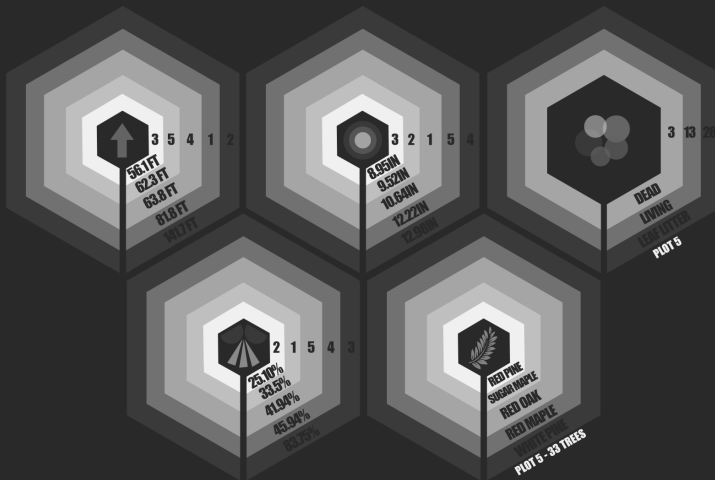
## CANOPY COVER

Amount of light let in through the tree's leaves.

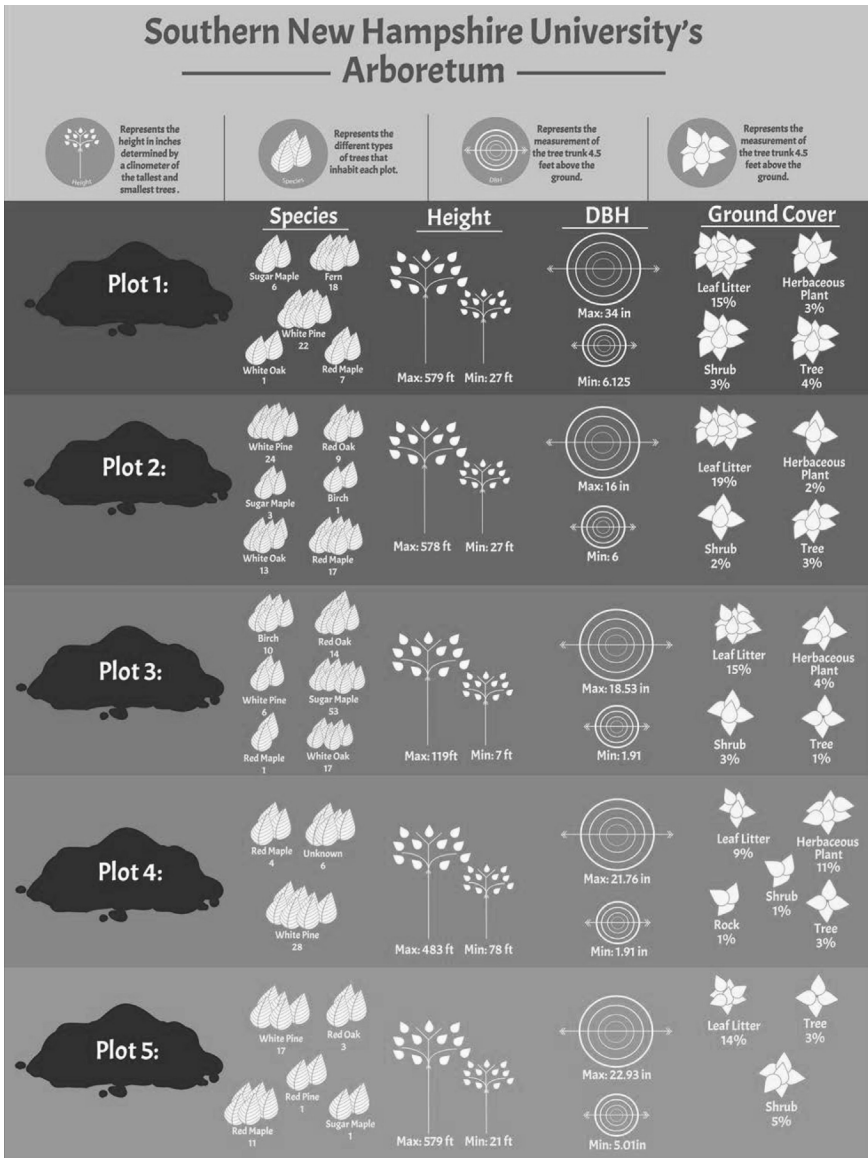


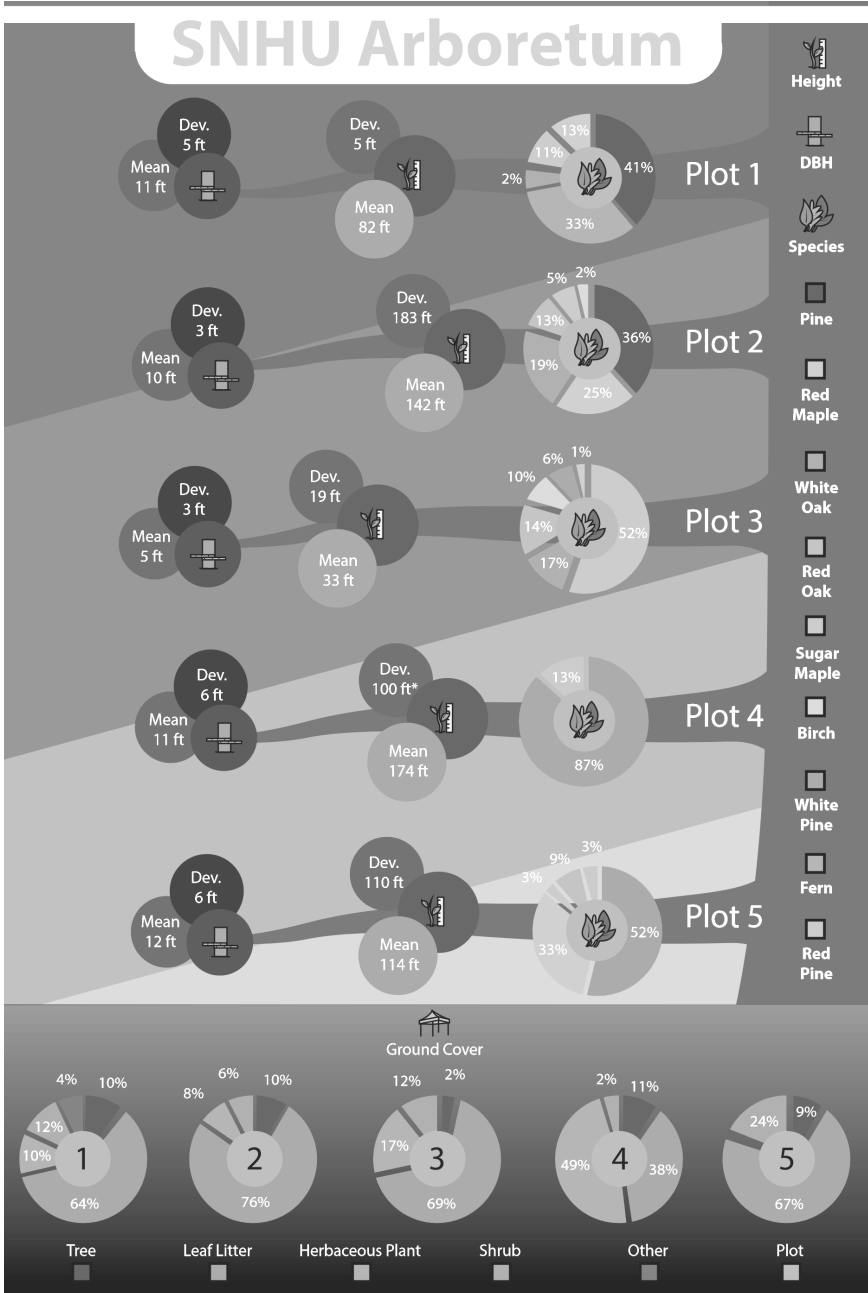
## GROUND COVER

The ground cover chart listed to us what different objects resided on the grounds of our plots and were divided into two transects. Split up into five different types: L = Leaf Litter, H = Herbaceous Plant, S = Shrub, T = Tree, R = Rock, and X = Rock



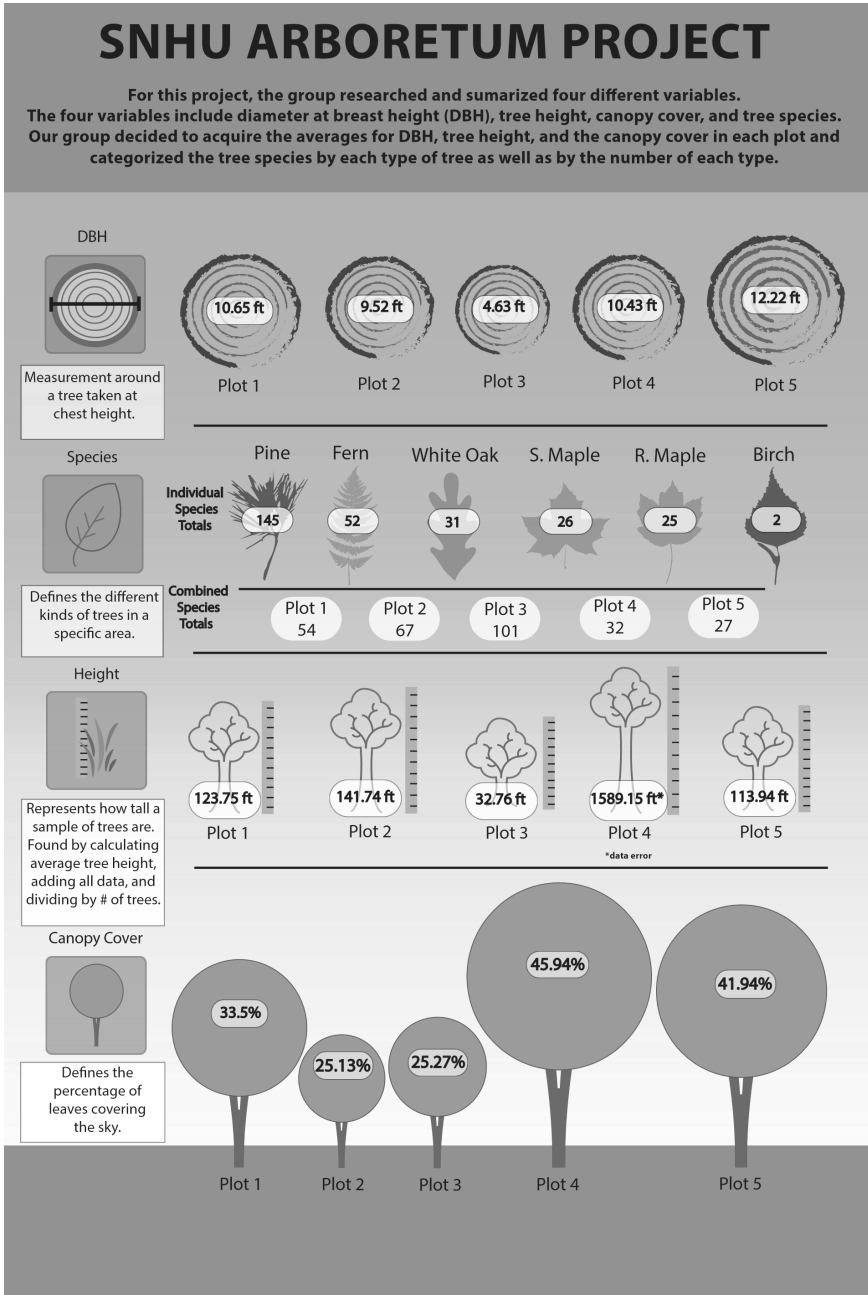
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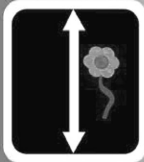
# Southern New Hampshire University Arboretum

- The Diameter Breast Height (DBH) in method one was collected using a tape measure, with the units being inches. In method two, the DBH was collected using a meter stick and also kept in inches.
- The Height is collected with three different methods. First an eyeball estimation, then cheap clinometer and finally an expensive “fancy” clinometer. These methods were collected using the unit of feet to identify the tree height.
- The species were categorized by the assistance of a guidebook and estimation.
- The canopy cover was measured with the units of percentage. Within the tree methods used there was eyeball estimation, canopy cover free phone application and densitometer.

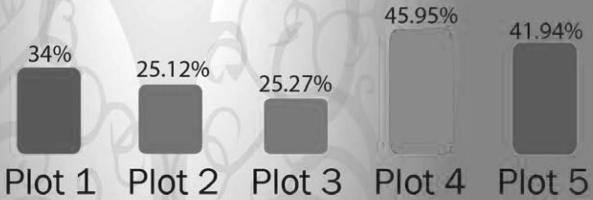
## Diameter Breast Height



## Height



## Canopy Cover



## Species



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# ARBORETUM PROJECT

## SNHU



### Species




Qualitative data will also be examined in this experiment. Tree species is one of the more obvious quantitative variables. Tree species cannot be averaged out, only placed into certain categories or groups, making them categorical.

	Plot 1:	Plot 2:	Plot 3:	Plot 4:	Plot 5:
					
	22	24	53	28	17

	Plot 2:	Plot 4:	Plot 5:
 Average:	9.52	10.43	12.22
Standard Deviation:	2.80	5.69	5.90
 Average:	141.73	80.45	62.33
Standard Deviation:	184.65	13.91	109.71



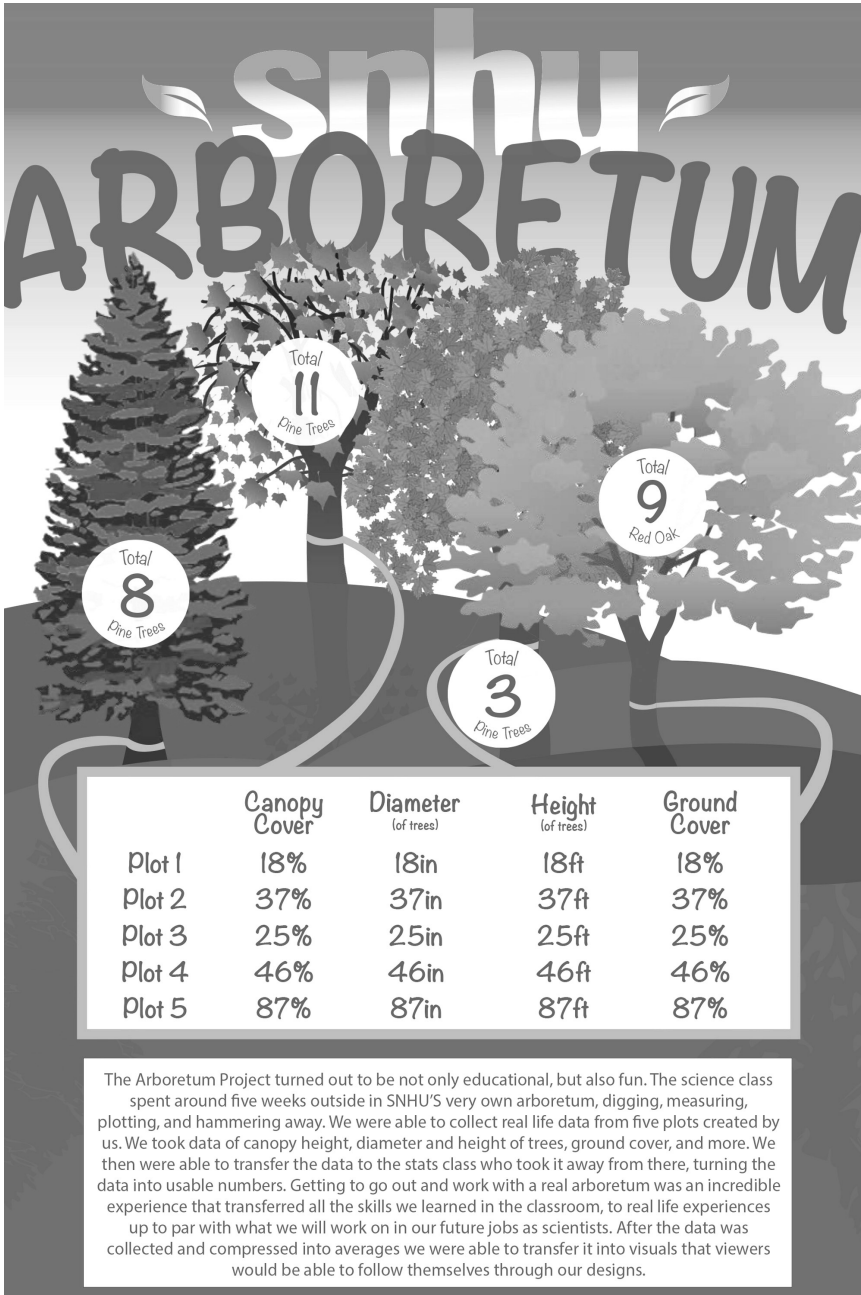
#### Diameter At Breast Height

Quantitative data will be examined in this experiment. The first quantitative variable is tree diameter at breast height (DBH), the diameter of the tree 4.5 feet off the ground. (Oregon State University) It is a numerical continuous variable because it can be averaged out and it can have an infinite number of values. The next variable is the height of the tree, which would be considered a numerical continuous variable because it can also be averaged out and infinite.

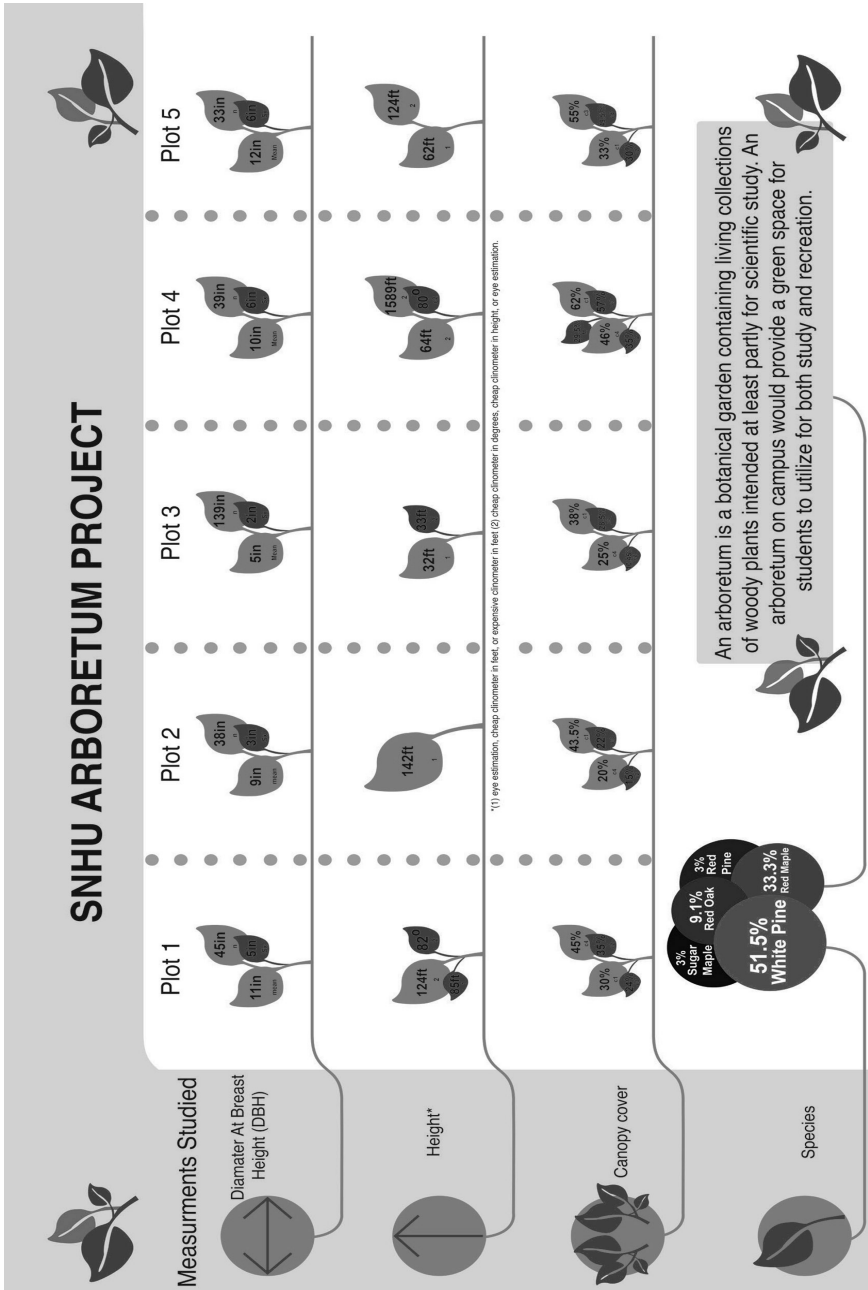


#### Height

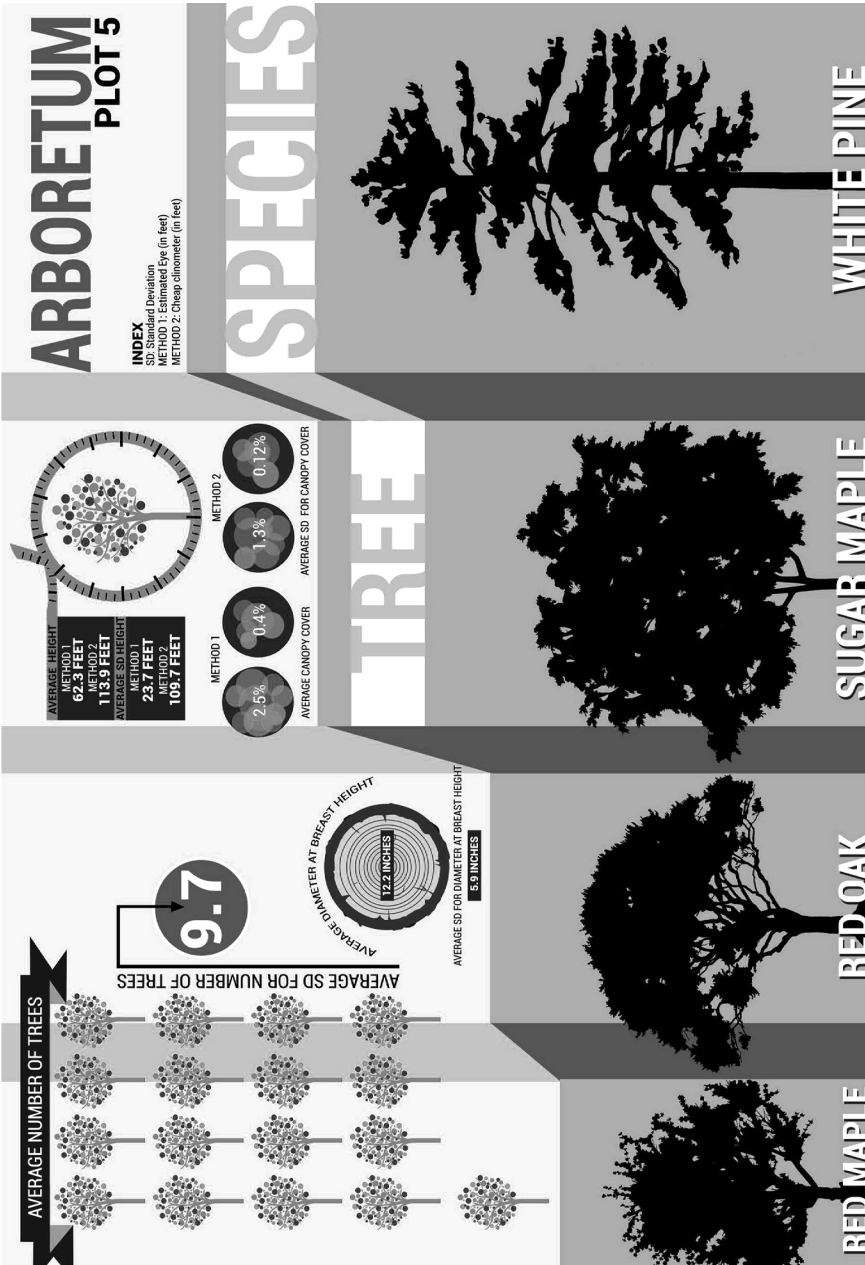
The tree's age is also considered a quantitative variable, because it's a numerical continuous variable that can be averaged out. Mean basal area is the mean of the cross-sectional area of a tree's trunk at breast height, which is the next quantitative variable.



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All images and figures must correlate to the following resolutions: 300 dpi for halftone and full-tone images, 500 dpi for photographic art, 1000 dpi for line art.

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Figures must be submitted in the color mode RGB. All images in color must also be submitted in grayscale to ensure that any imagery printed in grayscale will render with full legibility.

## Width & Sizing

Image width for individual files should be 140mm (approx. 5.5"). Submit images and figures close to this width.

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Maintain uniform lettering and sizing in all figures and images (including captions). Text in figures must be no smaller than 7 points, and no larger than 10 points. Embed used fonts if your application allows. Use the following fonts if possible: Garamond, Adobe Garamond Pro, or Helvetica Neue. If those fonts are not possible, use Caslon or Arial.

## Captions, Numbering & Naming

Ensure that every image or figure has a caption, containing a brief title and a description of the figure. Submit captions and titles as separate files from the image files. Number captions and titles according to the figure or image they correlate to. Keep text in the figures to a minimum, but explain all symbols and abbreviations used. Number

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If your electronic artwork is created in a Microsoft Office application (Word, PowerPoint, Excel) supply it "as is" in the native document format. Regardless of the application used other than Microsoft Office, when your electronic artwork is finalized, 'Save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):

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