



What is WonderLab?

A 21st-century model for university lab-schools, where undergraduate, graduate, and doctoral students work alongside faculty to co-construct and implement authentic, engaging, hands-on STEAM activities for children in grades K-12. Started and run by Three Faculty, Susan Rauchwerk, Director, Amy Mertl Financial administration, Nicole Weber Research

Research Focus

The WonderLab research documents outcomes from the implementation of inquiry-based STEAM programs:

1. Lesley students' dispositions, understanding of teaching and learning, classroom and behavior management, equity, access and engagement.
2. Lesley faculty, Lesley students, and/or program participant understanding of and interest in science and STEAM, sense of greenspace, and ecological literacy.
3. Development of critical thinking and research skills.

Research Questions - generated by Lesley

Students & Faculty

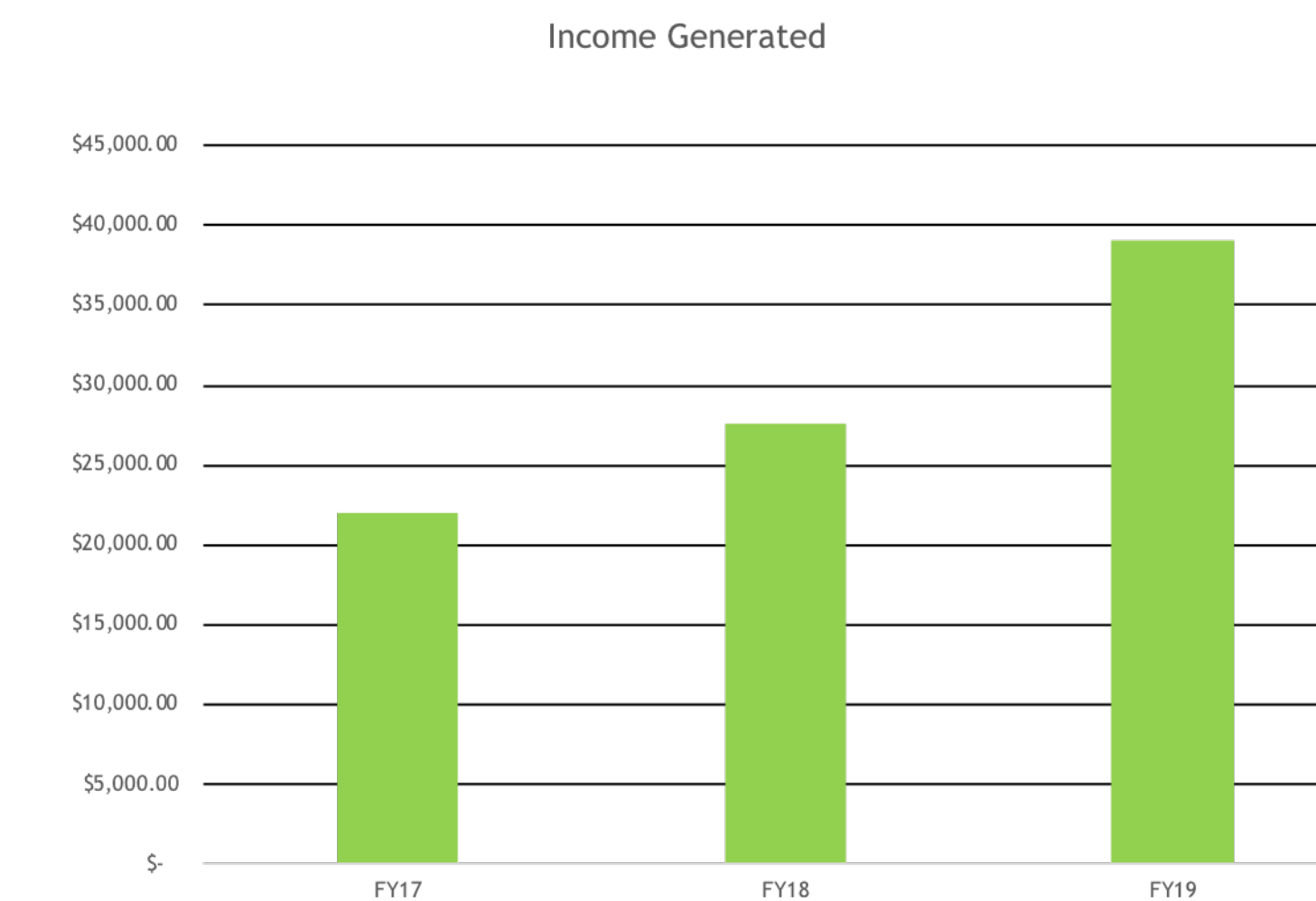
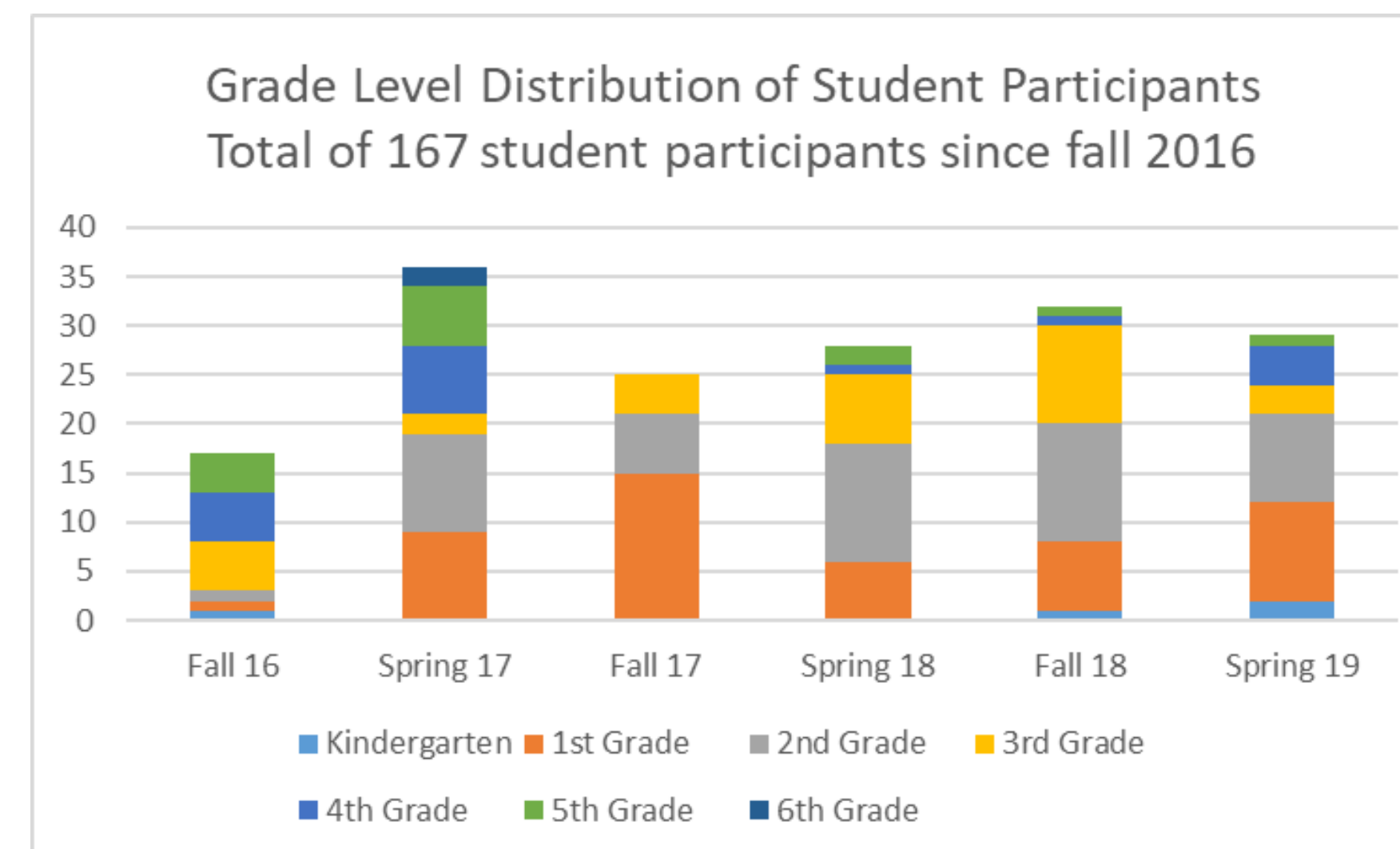
- Gender bias in WL
- Dispositional, pedagogical & content outcomes for WL educators
- Participant learning in
- Documenting learning & dispositional outcomes of Lesley students conducting field-based assignments with WL

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History of Accomplishments



September 2016-December 2017 Contact Hour Summary	
participants	Description and duration of WonderLab Activity
12	Faculty & staff other than Lesley students who help to run WonderLab
23	1 dean, 1 finance, 3 Coordinating Faculty, 2 part-time administrators, 5 faculty and staff supporting research (@ 1-20 hr/wk. for 50 weeks)
32	Lesley students employed by WonderLab (5-10 hours/week for 15 weeks)
40	WonderLab Family research night at Mt. Auburn Cemetery (2@2 hours)
40	Vacation Day programs (4 @6 hours each)
44	Professional development workshops for educators (3 @ 2-4 hours)
48	Teen programs (4@4 hours each)
80	Children participating in afterschool program (3.5 hr./day @ 15 weeks)
92	Lesley Science Methods students observing WL Students (14 @ .5 hours)
100+	Boston Science March Booth (25 hours each)
120	Conference Presentations 5 @ (1-2 hours)
144	Visiting schools and camps (2-4 hour programs)
146	Field-based assignment experiences for Lesley teacher candidates in classes across the university (40 @ .5 hours)
150	Cambridge Science Festival workshops (3 @ 1 hour each)
1,064	Total # of people served through WonderLab since Fall 2016
8,570	Approximate Total # of contact hours

WonderLab Contact Hour Summary for FY 18	
# of participants per year	WonderLab Activity
1	Program Director @ 20 hours a week for 45 weeks
1	Program administrator @ 4 hours a week for 52 weeks
2	Lesley students completing required field experience 75 hours/semester
3	3 coordinating faculty
6	Girls grades 6&7 in Math Circle 1.5 hours/week for 24 weeks
7	Lesley students employed for 5-10 hours a week for 36 weeks
10	African American girls grades 2-5 in STEAM Beans 3 hours/month for 6 months
25	Participants in Professional development workshops for educators - workshops offered by Wonder Lab faculty in partnership with WL Lesley Students staff and WL children @ 1-3 hours/workshop
60	Children grades 1-6 in afterschool program 3 hours/week for 36 weeks
50	Children in Vacation Week: Daily programs 3 hours/program
45	Science Methods students observing/teaching WL students 1 hour @ 8/semester
60	Lesley Students in visiting classes (Elementary, Special Education, Literacy)
120	Participants in 4 conference presentations @ 1 hour/presentation
190	# of Lesley students conducting field-based assignment with WL children (literacy, math, science, special education, arts integration, therapy) .5 hour/1-6/semester
200	Events: Somerville STEM booth, Cambridge Science Festival: Climate Café, Benefit Concert, STEAM exploration Party 1-3 hours/events/6 events
290	# of participants in programs held at Mt. Auburn Cemetery (20 programs)
300	Participants from schools and camps (Mass Audubon, Cambridge Environmental Literacy Project, Summer Inc. Tobin school, Cambridge Literacy Project) 3 hours/program with 20-25 students per program
1,370	Total # of People served in FY18 - (since inception 2,500+)

WonderLab Contact Hour Summary for FY 19	
# of participants per year	WonderLab Activity
1	Faculty overseeing all WonderLab programming
1	Program Director @ 20 hours a week for 42 weeks
1	Program administrator @ 10 hours a week for 36 weeks
2	Lesley students completing required field experience 75 hours/semester
2	Faculty coordinating administration and research
5	Science Methods Classes observing & teaching WL students for 1 hour 4-8 times semester
7	Number of faculty and Lesley students involved in WL research 7 @ 10-250 hours each
12	Visiting Professors and Educators @ 2-3 hours/workshop
15	Lesley students employed for 5-10 hours a week for 36 weeks
20	Lesley students from other teacher education classes observing and teaching WL participants
25	Girls grade 6&7 in Math Circle 1.5 hours/week for 24 weeks
30	Children in Vacation Week: Camps @ 18 hours/week in February and April
60	Children grades 1-6 in Afterschool Program 3 hours/week for 36 weeks
65	# of Lesley students conducting field-based assignment with WL children (literacy, math, science, special education, arts integration, therapy) .5 hour/1-6/semester
120	Participants in 1 conference presentation @ 1 hour/presentation
130	Participants from schools and camps (Mass Audubon, Cambridge Environmental Literacy Project, Summer Inc. Tobin school, Cambridge Literacy Project) 3 hours/program with 20-25 students per program
489*	Total # of People served YTD in FY19 - (since inception 3,000+) * total # of participants decreased because contact hours per person increased

Future Research Opportunities

Faculty are invited to use WonderLab with their classes. Susan Rauchwerk, Nicole Weber, Mary Ann Cappiello, Gail Cahill, Barbara Govendo who have integrated WonderLab into their courses by:

- Inviting WonderLab student into their classes where professor demonstrates teaching while Lesley students observe.
- Working 1-1 or in small groups with WonderLab students to practice teaching
- Provide behavioral evaluation and assessment
- Developing and implementing lesson plans
- Practicing storybook read-aloud, observing behavioral supports

WonderLab Contributions to the University

- Employs 15 Lesley undergraduate & graduate students as educators for 5-15 hours a week during the academic year.
- Employs 2 students (40 hours a week/2wks) to run summer programs.
- Employs Lesley graduate as the program director
- Graduate Assistantships
- Site for supervised early field experience
- Site for conducting coursework such as field based assignments

of Lesley Students Employed as Educators

	# of teachers	Total Hours Taught
Fall 16	5	295
Spring 17	9	612
Fall 17	7	650
Spring 18	6	632
Fall 18	8	576
Spring 19	7	



Preliminary Outcomes

Question: What from WonderLab is portable to public education?

Response from Lesley Student teaching in WonderLab: Instead of teaching vocab and doing an activity about that concept she allows students to find those concepts and terms in a setting where student observations are valued. The field work and the environmental outdoor activities give students an experience to tie the concepts to. That is a statement that's used a lot when teachers want their lessons to be more "experiential." However, even then teachers might over scaffold. The fieldwork model and WonderLab in general can help change the way teachers listen to their students.

Question: How is WonderLab different from school or other programs?

Response from the parent of a child participating in the afterschool program: We love how Wonderlab is a mixed-age program. We know that E really enjoys mingling with kids of different ages, and that's really different from school. Wonderlab's connection to the university also makes it unique. Compared to other after-school programs, WonderLab has a lot more staff on hand, which is particularly beneficial for E. We also know that everyone connected to the program is genuinely interested in education and in expanding their ability to work with a wide range of kids, so they are endlessly willing to experiment with how to best teach E and make sure that she's fully included. It seems to me that WonderLab's stance of "inquiry-based learning" extends to their staff's approach to figuring out their learners, and I think that's wonderful!

Question: What obstacles do you face in WonderLab?

Response from WonderLab Program Director: Creating administrative systems to support implementation. The logistics of implementation prove to be far more time consuming than anticipated which can take time away from our focus on research, training, and curricular development.

Question: What was science like when you went to school?

Response from Lesley Student teaching in WonderLab: "Despite attending a competitive preparatory school, science was bland...textbooks never really gave me the full picture. I wished that I had had more hands-on, tactile learning like we do in WonderLab"



Data Gathering

Please listen to primary interviews with WonderLab stakeholders on the Ipad accompanying this poster