COLLABORATING TO ACHIEVE SYSTEMIC, SUSTAINABLE WATERSHED EDUCATION & CIVIC ACTION

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A COLLABORATIVE SUCCESS STORY
WHAT IS A MW EE?

Meaningful Watershed Educational Experience

MW EE Essential Elements

1. Issue Definition
2. Outdoor Field Experience
3. Synthesis and Conclusions
4. Stewardship and Civic Action
### PBL vs MWEE

<table>
<thead>
<tr>
<th>PBL</th>
<th>MWEE</th>
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<tbody>
<tr>
<td>Define a problem</td>
<td>Issue based; propose a question</td>
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<tr>
<td>Student centered</td>
<td>Student centered</td>
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<tr>
<td>Multiple step investigation</td>
<td>Classroom &amp; outdoor investigations</td>
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<tr>
<td>Compose &amp; test solutions</td>
<td>Collect data to answer the question</td>
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<tr>
<td>Multidisciplinary</td>
<td>Multidisciplinary</td>
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<tr>
<td>Analyze &amp; synthesize results</td>
<td>Analyze &amp; evaluate results</td>
</tr>
<tr>
<td>Communicate results</td>
<td>Communicate results</td>
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<tr>
<td>Product-focused</td>
<td>Action Project</td>
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**What are the essential elements of a PBL & a MWEE?**

**PBL:** Problem-Based Learning  
**MWEE:** Meaningful Watershed Education Experience

Conceptualized by Candace Lutzow-Felling
Guiding Principles for Systemic ELit:

1. Individuals develop along a continuum of environmental literacy over time (NAAEE 2011)

1. Key factors for developing environmental literacy: observational skills, systems thinking, interdisciplinary connections, outdoor experiences (NAAEE 2019)

1. Outdoor-based learning benefits ALL learners (Kuo et al 2019)

1. Teachers need to have similar experiences as their students; engage in active learning (NAS 2015)

Actions/Strategies for Systemic ELit:

1. Create a comprehensive ELit strategy that scaffolds over the entire K-12 student experience

1. Key factors incorporated into the curriculum for all grades, K-12

1. All students participate in outdoor-based learning activities

1. Purposefully incorporate ELit concepts, instructional methods, & skills into professional learning
Students focus on a driving question!

The driving question addresses a locally relevant environmental issue, problem, or phenomenon requiring background research and investigation.

Stop and Jot: What is an issue you care about in your community and turn that into a driving questions.
Be ready to share at the end about how to take the issue you chose through the MWEE process.

Who could you **collaborate** with (stakeholders)?

How could you make it **systemic** (what are root causes)?

How could students continue to investigate this issue over time and make long term community-level change (**sustainability**)?
Activity: You have 90 seconds to create a driving question!!

Example: In the Richmond community, how do humans impact the health of the James River and the surrounding ecosystem?
How do different land surfaces affect surface water run-off & groundwater recharge?

How can we improve this investigation for our students?
1st graders observing & recording leaf characteristics
4th graders exploring surface water run-off on two ground surfaces: bare soil & native plants
7th graders measuring, laying out, & planting a pollination garden
HS students assessing biodiversity & creating “biodiversity bouquets”
Teachers learning how to identify trees
Educator partnerships: classroom & environmental educators

Collaboration results in investigations that are:

➢ Aligned with classroom teaching
➢ Tailored to meet the specific needs of a teacher’s students
➢ Better! Everyone needs an editor

Collaboration fosters program sustainability because:

➢ Teachers “own” the investigations
➢ Creates a team between classroom & environmental educators
SARAH JENNINGS

Student-led community-level action
Earth Force
Example of Environmental Action Civics

Jamestown Elementary, Arlington VA
2nd place Caring for Our Watersheds

Many collaborators to create community-level collaboration and sustainable/systemic change!
APRIL HARPER

Teacher Professional Development & Support
Friends of the Rappahannock
Establish Needs
I want to know…

The struggles and challenges you’re facing
Do you want help?
Are you in survival mode?

Establish Knowledge
I want to know…

Basic science and outdoor experience
What are you already doing & proud of
What are your favorite resources

Plan Accordingly

Agenda based on knowledge and needs
Incorporate the appropriate resource partners
Build in trust and listening opportunities
Keeping the Fun Going

Take Aways...

During
- Options for learner choice
- Manage expectations for incorporation
- Opportunity to plan, vent, and play
- Emphasize place-based

After
- Continual contact, but more than an email
- Share opportunities beyond yourselves
- “Separation of church and state”
Getting Pre-Service Teachers Involved in EE

Sarah Nuss
Education Coordinator, Chesapeake Bay National Estuarine Research Reserve in VA
Virginia Institute of Marine Science
Virginia Teachers Innovating and Designing Experiential Science (VATIDES)

Year 1

Tailored professional development (remote learning) for each university across full academic year
- Guest presentations
- Student summit

Year 2

Tailored professional development (hybrid) for each university across one semester, including field experience
- 1 Guest presentation
- Faculty summit
Findings and Next Steps

Pre-service teacher assessment
- Content Knowledge
- MWEE Self-Efficacy Scale
- Pedagogical Knowledge

Faculty assessment
- Role
- Alignment with syllabus
- Value

What's Next? - MWEE Education Hub
Reflections and Questions

We would love to collaborate with you!

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