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Studying our Teaching and Learning Through the Lens of Sustainability

Mary F. Wright
Assistant Professor of Literacy Education

Brenda Wright
Assistant Professor of Social Studies Education

University of Wisconsin – River Falls
An Ideology of Achievement.... (Macdonald, 1971)

*A Nation at Risk (1981) poses a deficit model of schooling as a place of checks and balances, benchmarks and rubrics.

*This SoTL study asserts that teachers have the power to renew their view of curriculum as an organic, porous and malleable vehicle for positive change particularly regarding our world in peril.
The central questions guiding our study..

- How could we impact our teaching and learning as well as our students by focusing on the lens of sustainability?

- Can we do this through our work within three educational layers: teacher educators, pre-service teachers, and K-12 elementary and secondary education students?
The context of this study

A teacher education department at a small Midwestern university

Approximately 6000 undergraduate and graduate students

Embedded in a small community of about 12,000 people

Thirty miles from a major metropolitan area
Methodology

*As holistic practitioners our research employed a phenomenological approach.

*We approached our SoTL study using a heuristic approach to thinking about the practice of teaching and learning through discussion, journaling, observations and reflections regarding student work.
Education for a Just and Sustainable World

- The time for our study was ripe
- Our University adopted as one of its core mission statements: Education for a Just and Sustainable World
Sustainability Working Group at UWRF

The Sustainability Working Group (SWG), launched in '07-'08, is the backbone of broad-based campus ownership and success for achieving Goal 2 of our Strategic Plan, that of "Model Sustainability Principles — UWRF will model and champion the principles of sustainable community development" and the nine (9) sub-tasks that define specific outcomes for such. These can be found at Goal 2: Model Sustainability Principles (PDF).

The SWG is an Ad Hoc Committee of the Faculty Senate, consisting of a broad representation of faculty, students, staff, and administrators, and is chaired by the Director of the SCISCD. SWG Membership (PDF) quickly re-organized its work around the nine sub-tasks of Goal 2, dividing into four Sub-Groups: Energy, Curriculum, Best Practices for People & Systems, and Outreach. Each sub-group has specific tasks and goals as defined in the University's strategic plan. The SWG as a whole retains responsibility for structure and function of the group, and coordinates and forwards the work of the sub-groups for broader campus consideration through the Shared Governance process between Faculty Senate, Student Senate, and the Administration. SWG Organizational Chart (PDF)

This webpage is organized around these groups, with each separate page providing an overview of their work and continuously updated archival of agendas, minutes, and working documents in order to provide as much awareness, transparency, and campus participation as can be generated. Each sub-group membership consists of core members of the SWG, plus any other ad hoc members the group thinks are valuable in achieving their tasks. Ad hoc members must be vetted by respective Shared Governance bodies. For example, faculty ad hoc members must be approved by Faculty Senate.
“Sometimes a thing in front of you is so big you don’t know whether to comprehend it first getting a dim sense of the whole and then fitting in the pieces or by adding up the pieces until something calls out at it” (Maclean, 1976, 53).
Likert scale.

To measure knowledge and attitudes about issues of sustainability as it relates to their curriculum and pedagogy.

Please circle levels of certification: Pre- K K 1 2 3 4 5 6 7-12
Please indicate your major content area certification:

Teaching For Sustainability Survey

<table>
<thead>
<tr>
<th>SA</th>
<th>Strongly Agree</th>
<th>A</th>
<th>Agree</th>
<th>UN</th>
<th>Uncertain</th>
<th>D</th>
<th>Disagree</th>
<th>SD</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>

1. I have the knowledge to integrate SC into my curriculum.
2. I want to integrate Sustainability Concepts (SC) into my curriculum.
3. I have the pedagogical skills to integrate sustainability into my curriculum.
4. I know how to invite student dialogue regarding sustainability issues within my content area.
5. I understand SC well enough to teach them effectively in the classroom.
6. I understand the rationale for integrating SC into my curriculum.
7. I am able to answer students’ questions regarding SC.
8. I know where to find curricular materials relating to SC.
9. I have experience integrating SC into my curriculum.
10. I practice SC in my daily life.
**Weaving Sustainability in multiple ways and levels**

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Middle</th>
<th>Secondary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self contained</td>
<td>Self contained</td>
<td>Many grade levels and subject areas</td>
<td></td>
</tr>
<tr>
<td>Language arts and social studies</td>
<td>7th and 8th grade Language arts and social studies</td>
<td>Literacy focus (reading in the content areas)</td>
<td></td>
</tr>
</tbody>
</table>
The effects of standardized learning on elementary teachers today:

- Predominant focus on reading, math and science – NCLB
- Less time to focus on meaningful, authentic learning
- Increase in traditional paper and pencil activities
- Teach to the test
Due to the bureaucratic standardized educational milieu of today, it is imperative that future teachers understand the necessity for designing and implementing integrated, holistic curriculum. Time is of the essence in the classroom, so make the most of it through integration of discipline.

Integrated subjects support one another in a meaningful way allowing as Shoemaker (1998) suggests, holistic, real-world, educational experiences to take place.
Elementary Focus

The SoTL grant provided the impetus to study pre-service teachers in their quest to:

1. Develop and implement an integrated unit based upon environmental sustainability - study balance of environment, culture, economics (Santone, 2004)
2. Increase competence in teaching sustainability using holistic methods.
3. Personally incorporate sustainability components into their everyday lives.
Expectations for Pre-service Teachers- The “Block II,” Integrated Experience

- Completion of a pre and post survey.
- Construction of a six-lesson unit, incorporating a language arts writing process within the context of social studies.
- Implementation of this unit within a six week practicum experience in a suburban or inner-city public school.
- Personal and professional reflective practice on the experience in the form of a photo essay.
Process of creating an integrated unit

Collaborate with cooperating teacher:
- Topic
- Skills
- Standards
- Classroom Diversity - differentiated student needs

Collaborate on campus with peers and professors:
- Integration of literature/writing/social studies content
- Development of 6 unit lessons
- Anchor literature to support topic
- Authentic activities
- Web development - all social studies strands
This integrated unit was based on Earth Day with a focus on recycling. In Social Studies, students planned a service learning project to clean up and recycle litter in their community. In Language Arts, students wrote letters to the president about the environment.
A Community Garden Unit - Purpose

- Second grade students explored gardening through an integrated unit of language arts and social studies. This integration allowed for a deeper understanding and connection with the subject. The purpose was to prepare them to garden in the community garden.
- The students explored two major elements of gardening:
  - How do we garden? (Language Arts)
  - Why do we garden? (Social Studies)
### Integrated Gardening Unit: Social Studies and Language Arts

**Goals:**
1. Understand how to grow a plant
2. Explore how gardening benefits the community
3. Broaden language skills
4. Prepare to garden in community

### Integrated Lesson 1: 3/14/08, 3/16/08
**Reading:** Tops and Bottoms, Janet Stevens
**Activities:**
- Plant bean
- Soak bean
**Language Arts:**
- Pre-write about gardening process with pictures and words/phrases

### Integrated Lesson 2: 3/18/08
**Reading:** The Tiny Seed, Eric Carle
**Activities:**
- Examine bean and soaked bean
- Drafting:
  - Write out steps of growing a plant

### Social Studies Lesson 2: 3/23/08
**Intro.:** Colors in a Garden activity
**Activities to Build to Project:**
- Pictures of possible benefits
- In groups, decide if one picture represents a benefit and why or why not
- Present group’s decision to class

### Social Studies Lesson 3: 3/25/08
**Intro.:** Discuss two scenes → one with a garden and one without
**Activities:**
- City Green, DyAnne DiSalvo-Ryan
**Final Project:**
- Individual poster of benefits of gardening for community

### Language Arts Lesson 1: 3/18/08
**Reading:** “Gardening Song”
**Activities:**
- Examine bean and flower
**Revision:**
- Revise steps → add transition words (“order words”)

### Language Arts Lesson 2: 3/21/08
**Reading:** “Gardening Song”
**Activities:**
- Fold book
**Editing/Publishing:**
- Edit for capital letter at beginning of sentences and period at the end
- Write book
- Illustrate book

### WI Content Standards
**Language Arts:**
B.4.2

**Social Studies:**
A.4.4
B.4.2
C.4.1
C.4.5
E.4.15
Pre-service Teachers Professional Reflection

“As a result of having experienced this, I have grown professionally and personally. I will teach and guide students to explore gardening comprehensively in the future... I plan to incorporate as many subject areas as possible—including music ...and foreign language (terms in English or in other languages). Exactly what I incorporate will depend on the students’ needs using a holistic gardening theme in the future.”

“Through learning how to recycle, I was giving the students one simple tool they could use to take on their roles and help protect our Earth. I know this was a successful unit because students continually told me stories of how they started recycling at home and picking up garbage as they saw it. I have enjoyed teaching these students how to be recyclers and an individual who can have a positive impact on the world they live in.”
Pre-service Teacher Personal Reflection – Gardening Unit:

“...I have discovered how valuable and diverse gardening is...people can grasp the concept of helping and improving communities and the earth in several ways—food, beauty, generosity, ... Most importantly, it offers citizens the opportunity to not just think about it, but physically act on it and make a difference in the lives of others. Gardening has always been enjoyable... for me. I can articulate...that more than anything, it improves the human condition.”
Stricture – Give them an inch, they’ll take a mile…. 

vs. Structure – exactly the point

Discipline based learning can narrow a gestalt of understanding. Reading becomes critical literacy when students are taught to think about the world they live in and act upon it. (Freire, 1976; McDaniel, 2006)
<table>
<thead>
<tr>
<th>Secondary Content Areas</th>
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<tr>
<td>Spring 2008</td>
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<tr>
<td>Fall 2008</td>
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<table>
<thead>
<tr>
<th>Mathematics</th>
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<tbody>
<tr>
<td>English</td>
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<tr>
<td>Art</td>
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<tr>
<td>Music</td>
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<tr>
<td>Agriculture</td>
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<td>TESOL</td>
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<table>
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<tr>
<th>Science</th>
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<tbody>
<tr>
<td>* Social Studies</td>
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| Physical Education and Health    |
### Sustainability Themes for the Alternative Text Collection

<table>
<thead>
<tr>
<th>Category</th>
<th>Agriculture &amp; Fisheries</th>
<th>Biodiversity</th>
<th>Climate change and atmosphere</th>
<th>Consumption patterns</th>
<th>Desertification and Drought</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disaster Reduction</td>
<td>Education and awareness</td>
<td>Sanitation</td>
<td>Human labor and social rights</td>
<td>Lands</td>
<td></td>
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<tr>
<td>Soils</td>
<td>Forests and Mountains</td>
<td>Poverty</td>
<td>Production patterns</td>
<td>Seas and Oceans</td>
<td></td>
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<tr>
<td>Sustainable development</td>
<td>Tourism</td>
<td>Transportation</td>
<td>Fair Trade</td>
<td>Energy</td>
<td></td>
</tr>
</tbody>
</table>
A Reading Apprenticeship Approach

- Dimensions of Reading:
  - Social
  - Affective
  - Knowledge
  - Cognitive
Objective for Secondary Strand:

Major question: How deeply could undergraduates and graduate students cover their chosen sustainability topic within their content area as they prepare to teach these concepts within the field?
Poverty in Agriculture

John Steinbeck’s “Of Mice and Men”
Mathematics & Fair Trade

“This text greatly supports the selected unit of study of fair trade and the theme of sustainability... There are currently studies occurring to see how Fair Trade can influence a sustainable livelihood in various communities throughout the world so that men and women don’t have to feel forced to leave their homes for work that might be dangerous and exploitive.”
“A Christmas Sermon on Peace
MLK from The Trumpet of Conscience

- “It really boils down to this: that all life is interrelated. We are all caught in an inescapable network of mutuality, tied into a single garment of destiny. Whatever affects one directly, affects all indirectly.....We aren’t going to have peace on earth until we recognize this basic fact of the inter-related structure of reality’

- “This quote really moves me and would make a great launch into the unit”- student quote
Art Education

- Sustainability
- Desertification
- Metamorphosis

Alternative Text Collection:
Photography

These pictures were found in Lurian's Inf! Archive Ads. TV and Posters Worldwide. They fit in with the idea of metamorphosis quite well because they show destruction, and then over the top of it, what the land used to be. These photos were taken after hurricane Katrina. This is a realistic situation to many families all over the world, and it's good for students to see what natural disasters can do.

I think it would be good to have the students draw up photos that have some sort of disaster in them, and then have a part on the side that shows life normal again, like the images above. I think it shows a sign of hope. Students could look into tornadoes, hurricanes, tsunamis, and floods. No matter where you live in the world, you have to deal with some sort of natural disaster at one point or another, so they might as well explore the issues of it in school.

An image that students could also work on would be a metamorphosis drawing of something starting out good, and then re-drawing the image until there is finally nothing. It would show the stages of destruction rather than just a before and after shot. There are many ways to play with the idea of metamorphosis and its just an open book from here.
English Education

- Sustainability theme of Child Labor
- Trade book Lyddie
- Supplemental texts: Utube, comics, newspaper articles, video
Mindful Teaching and Learning Through Peace Meditation Journaling

7th & 8th grade Language Arts
Local parochial school
Met once a week each semester
Looking Deeply

“We have to meditate on being the river so that we can experience within ourselves the fears and hopes of the river. If we cannot feel the rivers, the mountains, the air, the animals, and other people from within their own perspective, the rivers will die and we will lose our chance for peace” Thich Nhat Hahn (1991, p. 105).
Interbeing

“If you are a poet, you will see clearly that there is a cloud floating in this sheet of paper. Without a cloud, there will be no rain; without rain, the trees cannot grow; and without trees, we cannot make paper” (Hahn, 1991 p. 95)
I have never thought that far in depth about the connection between paper and nature. If you really think about it, nothing would exist with the sense of thought. Because God had to think about how he could make the world better and be thought about making love which created the earth and so on and so forth through the evolution of earth. So I learned to be more mindful when I think of things and how they were made. So now when I go to church, I have the sum to think for them.
The River

There is a very beautiful poem in Chinese: “The fresh and beautiful moon is traveling in the utmost empty sky. When the mind-rivers of living beings are free, that image of the beautiful moon will reflect in each of us.”

Thich Nhat Hahn (1991, p. 132)
Looking Ahead: Exposing and Dispelling the Existent Myths

*Open new and multiple ways to view the global landscape

*Use alternative curricular resources and teaching methods

*Connect issues of social justice and equity to our country and our world
Wisdom of Thich Nhat Hahn

There are 84,000 Dharma doors for you to enter your own reality. Dharma doors are means to practice. When we ride on a horse, which is out of control, I think our deepest wish is to stop. How can we stop? We have to resist the speed of losing ourselves, and therefore we must organize a resistance (110).
Holistic Education & Critical Literacy

*Provide teachers and teacher researchers ways to discover a reality driven by practices that encourage authentic meaning making

- These practices empower us with a sense of who we are and how we teach and learn, and are shaped by the world we live in
Elementary Survey Results

Sustainability Survey Before

Sustainability Survey After

# of Responses

Question

Strongly Disagree
Disagree
Uncertain
Agree
Strongly Agree
Highlights of Elementary Survey Results

- Percentage of respondents who agreed or strongly agreed that they have the **knowledge to integrate** sustainability concepts into their curriculum increased from 77% to 100% as a result of the integrated unit experience.

- Percentage of respondents who agreed they are able to **answer student’s questions** in regard to sustainability concepts increased from 58% to 93% but of the 93%, only 7% strongly agreed.

- Percentage of respondents who agreed or strongly agreed that they had **experience integrating** sustainability concepts into their curriculum increased from 41% to 100%.
Secondary Survey Results

Sustainability Survey Before

Sustainability Survey After

Question 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

# of Responses

Strongly Disagree
Disagree
Uncertain
Agree
Strongly Agree
Highlights of Secondary Survey Results

- Percentage of respondents who agreed or strongly agreed that they have the knowledge to integrate sustainability concepts into their curriculum more than doubled from 37% in the pre survey, to 87% in the post survey.
- Respondents confidence in their ability to effectively teach sustainability concepts in the classroom increased from 14% in the pre survey to 55% in the post survey.
- Percentage of respondents who agreed or strongly agreed that they had experience integrating sustainability concepts into their curriculum increased from 11% to 52%.
A final note...

“Our earth provides us many possible benefits. As a global society, we do not always treat it as well as we should. Nevertheless, each and every one of us has the power to thank and reward the earth and its citizens.” Preservice Teacher - 2008

This quote is the essence of the result of this study. If we teach with the end in mind, which is transformation of ourselves, it will and must affect the lives of others. Hopefully, those lives are touched in positive ways, helping to sustain us all for generations to come.
Concluding Thoughts

- This SoTL study placed us on a path toward a mindful way of teaching and learning –
- with sustainability in mind for the twenty-first century.