Cultivating Environmental Literacy in the English Classroom and Beyond

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Summary
The United Nations’ Intergovernmental Panel on Climate Change (IPCC) recently stated that along with ecological threats such as massive-scale extinction, loss of freshwater marine ecosystems, and drastic ocean acidification, “[a]ll aspects of food security are potentially affected by climate change” (IPCC 18). Storms, droughts, and sea levels aside, continuing under the “business as usual” paradigm of carbon output and environmental waste means that a rapidly increasing percentage of the human population may die of starvation. Faced with the task of “educating ‘leaders for the future’” (Cotton et al., 2015, p. 456), it is critical that educators foster active engagement with such climate-change related issues. Following Cotton et al.’s (2015) claim that “developing students’ energy literacy is a key part of the ‘greening’ agenda” (p. 456), this workshop will focus on cultivating environmental literacy in English pedagogy at the post-secondary level. While there is ample research to support the general importance of environmental literacy (EL), there are few substantive outlines for implementing this material in the English classroom. This workshop offers English instructors hands-on assignments, exercises, and teaching strategies to help them cultivate EL as part of their pedagogy. In addition to practical pedagogical suggestions made throughout this article, three appendices offer detailed descriptions of particular classroom exercises.

Keywords
environmental literacy, English pedagogy, ecocriticism, ecocritical education, teaching sustainability

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Cultivating Environmental Literacy in the English Classroom and Beyond
David Huebert, Western University

SUMMARY
The United Nations' Intergovernmental Panel on Climate Change (IPCC) recently stated that along with ecological threats such as massive-scale extinction, loss of freshwater marine ecosystems, and drastic ocean acidification, “[a]ll aspects of food security are potentially affected by climate change” (IPCC 18). Storms, droughts, and sea levels aside, continuing under the “business as usual” paradigm of carbon output and environmental waste means that a rapidly increasing percentage of the human population may die of starvation. Faced with the task of “educating ‘leaders for the future’” (Cotton et al., 2015, p. 456), it is critical that educators foster active engagement with such climate-change related issues. Following Cotton et al.’s (2015) claim that “developing students’ energy literacy is a key part of the ‘greening’ agenda” (p. 456), this workshop will focus on cultivating environmental literacy in English pedagogy at the post-secondary level. While there is ample research to support the general importance of environmental literacy (EL), there are few substantive outlines for implementing this material in the English classroom. This workshop offers English instructors hands-on assignments, exercises, and teaching strategies to help them cultivate EL as part of their pedagogy. In addition to practical pedagogical suggestions made throughout this article, three appendices offer detailed descriptions of particular classroom exercises.

KEYWORDS: environmental literacy, English pedagogy, ecocriticism, ecocritical education, teaching sustainability

LEARNING OUTCOMES
By the end of this workshop, participants will be able to:
- define environmental literacy and explain the imperative to foster environmental literacy in the English classroom (and beyond);
- conduct an interactive carbon-footprint exercise with their own students;
- conceive strategies for implementing environmental literacy in their specific teaching area; and
- empower themselves and their students to make substantive, eco-friendly changes to their everyday lives, such as decreasing carbon emissions and household environmental waste.

REFERENCE SUMMARIES

This paper examines energy literacy among undergraduate students at Plymouth University, assessing attitudes and knowledge via focus groups and an online survey. The authors note that universities attempt to reduce energy use by “greening” campuses but not necessarily through changes in curricula. The authors make various suggestions for how universities might implement positive environmental change, and argue that “[h]igher education has a key role to play in educating ‘leaders for the future’” (p. 456). This article will be used in the Introduction of the workshop to help the facilitator explain what EL is and why it is imperative for all educators to inculcate EL in the minds of future generations.

Detailing her own experiments teaching English at The University of the Western Cape in South Africa, the author makes the case for the value and urgency of environmental literacy for a specific discipline (English) within the humanities. Acknowledging her own ideological commitments, the author concedes the “connotations of engagement, empowerment, and ‘grassroots’ affiliation” at work in the very terminology of “environmental literacy” (p. 36). The author offers concrete suggestions for teaching EL in the English university classroom, suggesting ways to approach particular texts such as “Flight” by Barry Lopez, More than a Casual Contact by Jeremy Cronin, and The Lives of Animals by J.M. Coetzee. This article enters the workshop during the section “Implementing EL, Part One,” where the facilitator presents Martin’s exercise (presented on pages 40-41) involving asking students to keep track of the ecological details—garbage, recycling, water—of their own homes.


This article examines the impact of the Environmental Literacy Requirement (ELR) instituted at The University of Georgia in the fall 2005 and spring 2006 semesters. Moody and Hartel find that “the ELR increased student knowledge (76 percent) and concern (65 percent) about environmental issues and changed some students’ behavior (26 percent)” (p. 355). This article will be deployed in the section “Environmental Literacy Requirements,” where it will be used to define ELR and show how an institution might institute a mandatory ELR for their students, the merits of which participants can then discuss.


This article analyses the major changes in cultural consciousness about climate change that have taken place since United States Congress passed the National Environmental Education Act in 1990. Potter argues that the act itself is outdated and does not sufficiently accommodate “systemic change” (p. 22). The facilitator cites this article in the section “Environmental Literacy Requirements,” noting Potter’s forceful advocacy of the need for strict legislation mandating environmental education.


This study aims to acquire information regarding undergraduate university students’ awareness of and attitudes regarding global climate change. Using surveys to generate data, Wachholz, Artz, and Chene find a strong general awareness about climate change but also many misconceptions about the causes thereof. They conclude that “[h]igher education needs to expand its educational efforts to ensure that all university graduates understand scientific consensus about climate change and are actively engaged as part of the solution in their public and private roles” (p. 128). The facilitator cites this claim in the Introduction of the workshop as a way to set the theoretical parameters of this workshop by defining EL and stressing its urgency.
## CONTENT AND ORGANIZATION

<table>
<thead>
<tr>
<th>Duration (min)</th>
<th>Subject</th>
<th>Activity</th>
<th>Purpose</th>
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<tr>
<td>15</td>
<td>Introduction: What is Environmental Literacy?</td>
<td>Brainstorm. The facilitator begins by asking participants what environmental literacy (EL) is and whether it is something educators should care about. This question empowers participants by showing them how much they already know about the topic. The facilitator then presents recent research on EL (Cotton et al; Wachholz, Artz, and Chen) and statistics to show that 1) we are in the midst of a global ecological crisis, 2) it is the responsibility of university educators to foster environmental literacy in their students, and 3) cultivating environmental literacy can enact real, substantive change. The facilitator and the participants then collaboratively create a working definition of environmental literacy—such as “awareness of the current global ecological crisis, including basic causes and possible remedies”—which the facilitator writes on the board and returns to throughout the workshop. See “Appendix A” for further details on how to collectively reach a definition.</td>
<td>Define environmental literacy and explain its relevance for university and college education.</td>
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<td>5</td>
<td>Carbon Footprint Self-assessment</td>
<td>Dotmocracy. The participants estimate their own environmental output. They are given a sticker which they then place in one of three categories: “litterbug,” “casual recycler,” or “model terrestrial citizen.” The facilitator briefly outlines parameters of who might fit each category. For example: those with two or more cars in their household count as “litterbugs,” those with one car qualify as “casual recyclers,” and those with no vehicles are “model terrestrial citizens.” The idea is that most people will over-value themselves here, finding in the next segment that they are in fact less ecologically conscientious than they think.</td>
<td>Allow participants an initial self-assessment on which to reflect back later, possibly facilitating an enlightened surprise. This is also an active learning exercise that involves all participants.</td>
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<td>15</td>
<td>Carbon Footprint Calculation</td>
<td>Demonstration/ Individual Calculation. Opening an online carbon footprint calculator, the facilitator demonstrates</td>
<td>Participants measure their own environmental impact and learn how to conduct a</td>
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how to use the calculator by inviting the group to help calculate Jane Eyre’s carbon footprint (see “Appendix B” for further details). This exercise models discipline-specific teaching practices (science facilitators might calculate Isaac Newton or Albert Einstein’s footprint). Participants then proceed to calculate their own footprint on their mobile devices or the room’s computer.

| 10 | Reflection | Line-Up/Group Discussion. The facilitator uses a line-up activity (see presentation strategy #8) to determine how surprised students were by the results of their carbon footprint calculation. The facilitator then asks one person who was very surprised, one person who was not surprised, and one person who was moderately surprised to speak to their reaction. After responding to and synthesizing these comments, the facilitator initiates a group discussion reflecting on the carbon footprint calculation exercise more generally. Facilitator emphasizes the major takeaway: that carbon footprints in the nineteenth century were much lower than today—this is the main lesson to pass on to students when they bring this exercise to their own classrooms. The facilitator offers tips for how participants might use this exercise with their own students, optionally distributing “Appendix B” as an emailed handout. Finally, the facilitator suggests online resources (see presentation strategy #4) for tracking one’s carbon footprint over a longer time period in order to make substantive improvements. |
| 10 | Environmental Literacy Requirements | Article Summary and Discussion. Facilitator summarizes Moody and Hartel’s article, “Evaluating an Environmental Literacy Requirement Chosen as a Method to Produce Environmentally Literate University Students,” explaining the difference between environmental literacy (EL) and an Environmental Literacy Requirement (ELR). Facilitator then |

| 10 | Reflection | Compare participants’ initial assessment of their own carbon footprint to measured results, perhaps learning something they did not know about themselves. | 

| 10 | Environmental Literacy Requirements | Introduce and consider the idea of an ELR, a logical next step for environmental education. |
facilitates a brief discussion, asking participants whether they feel that their university should adopt such a requirement.

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<th>15</th>
<th>Implementing EL, Part One</th>
<th><strong>Implementing EL, Part One</strong>&lt;br&gt;<strong>Mini-lecture.</strong> The facilitator distributes the “Implementing Environmental Literacy” worksheet (Appendix C). Facilitator explains how one might incorporate EL into a specific discipline (English), and participants follow the examples on the worksheet. Examples include English-specific practices (teaching ecological content, attending local events), as well as cross-disciplinary teaching techniques (online assignment submissions, used book exchanges, technology-free Tuesdays). See worksheet for detailed descriptions of these exercises and assignments.</th>
<th>Develop a more nuanced and detailed knowledge of EL and hear about innovative teaching ideas that spark participants’ pedagogical imaginations.</th>
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<tr>
<td>15</td>
<td>Implementing EL, Part Two</td>
<td><strong>Think, Pair, Share.</strong> Participants take five minutes to fill in the “Your Ideas” section of the “Implementing Environmental Literacy” worksheet, conceiving how they might implement EL in their own discipline and more generally. They then discuss these ideas with a partner for five minutes, and finally each pair shares their ideas with the larger group. The facilitator concludes by stressing that it is vital to include basic environmental literacy in all post-secondary instruction, and that one of the most important goals of EL pedagogy should be to reach students who are not predisposed to study “green” subject matter.</td>
<td>This is the lynchpin of the “and beyond” part of the workshop. Here participants—having already established that environmental literacy is a global and trans-disciplinary imperative—<strong>conceive</strong> how it might be applied in various disciplines and then share the ideas they have generated.</td>
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<td>5</td>
<td>Recap</td>
<td><strong>Mini-lecture.</strong> The facilitator synthesizes the central points of the workshop and goes over the learning outcomes, all of which have ideally been reached by this point. The facilitator re-states the established definition of environmental literacy and asks whether there are any final amendments. Finally, the facilitator mentions some of the key examples participants have come up with during the workshop for how to implement environmental literacy in their home disciplines and beyond.</td>
<td>Participants recall what they have learned and internalize key points. Participants are now <strong>empowered</strong> to change students’ lives as well as their own.</td>
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**Total Time:** 90 minutes
PRESENTATION STRATEGIES

1. **Brainstorm.** This activity encourages participants to offer their opinions and to show how much knowledge they already bring to the lesson. It can be a good icebreaker or warm-up technique, but its weakness is that it favours those confident learners who are willing to share their voices.

2. **Dotmocracy.** Dotmocracy gives everyone in the room a voice. Each participant receives several circular stickers and is invited to vote on a topic by placing these stickers in one of several categories on a poster in the room. This activity gives the facilitator data to incorporate into the lesson and can double as an immediate assessment technique. This is also a genuine active learning exercise, because every participant is encouraged to offer their vote.

3. **Demonstration.** In the demonstration, the facilitator uses the same carbon footprint calculator the participants will be using for their own carbon footprint calculation (http://footprint.wwf.org.uk/). The facilitator runs through the exercise with the students, encouraging participation by inviting speculations: Was Jane a meat eater? How many times a week did Jane eat meat? Did Jane drive a car? How often did Jane Eyre and Mr. Rochester take the train to London? This exercise combined with the next one will inevitably prove that Jane’s carbon footprint is much smaller than even the most eco-friendly citizen of the modern world.

4. **Online Carbon Footprint Exercise.** To model responsible environmental teaching practise, the facilitator saves paper by using an online carbon footprint calculator (http://footprint.wwf.org.uk/) on the classroom projector. Facilitator encourages participants to sign up with WWF to reduce their carbon footprint and use this same calculator to track their footprint over a longer period. Should the facilitator prefer to use a print calculator, there are many resources available online:
   - http://sustainenergy.org/

5. **Group discussion.** The facilitator asks questions and solicits responses from participants, taking particular care to choose a variety of voices. The potential weakness of this presentation strategy is that certain people may be reluctant to contribute while others might be eager to share their ideas. In the “Environmental Literacy Requirements” section, the facilitator may find certain participants arguing that the university should not implement such a requirement. In such an instance, the facilitator should clearly state that this is a valid position. It is not the prerogative of this workshop to advocate for an environmental literacy requirement specifically—more organic methods of advocating for EL may be preferable. As the cited literature shows, however, the dissemination of EL is an unequivocally desirable goal. Should participants disagree with this premise, the facilitator should direct them towards the appropriate research and suggest continuing this tangential discussion after the session.

6. **Mini-lecture.** The facilitator offers energetic presentations, staying under fifteen minutes at a stretch. This is a good time to share research and to impart detailed information, which participants will then be able to process and incorporate during active learning segments.
lecture is most effective when it is offset by active learning exercises, differentiating the instruction for diverse learning styles.

7. *Think, pair, share.* Participants gather thoughts individually, then divide into groups of two to share those thoughts. Finally, each group shares their findings with the class as a whole. This is an active learning exercise in which everyone participates.

8. *Line-up.* Participants form a line based on their responses to a question, in this case, “How surprised were you by the results of your own carbon footprint calculation?” Moderate people stand in the middle while people who were a) very surprised or b) not at all surprised stand at opposite ends of the line. This is a helpful activity insofar as it quickly and effectively demonstrates a range of opinions within a group. It is an active learning exercise and an activity that gets participants’ blood flowing and appeals to tactile learners.
APPENDIX A: Collaborative EL Definition Exercise

In the opening section of the workshop, the facilitator and the participants collaboratively create a working definition of EL. This definition could be something like, “awareness of the current global ecological crisis, including basic causes and possible remedies.” But it is crucial that this is an open-ended and collaborative exercise that could lead to several possible definitions, thus creating a sense of validation and active involvement for participants.

The exercise consists of two parts: first, the facilitator leads a brainstorm activity, asking students what they think EL might mean. During this brainstorm, the facilitator writes particularly useful terms on the board, glossing and elaborating as necessary. Subsequently, the facilitator highlights and synthesizes those key terms and asks participants to shape them into a working definition of EL. Below is a list of indispensable terms for the definition. In general, the facilitator should avoid language that veers towards ideological debate and encourage social and scientific terms that stress how this crisis affects human and nonhuman life universally. Likewise, the facilitator should avoid sensationalistic or apocalyptic language and emphasize the way education around this topic can mobilize much-needed change. If participants do not reach the “indispensable” terms on their own, the facilitator should attempt to draw them out and eventually add them.

**Indispensable Terms:**

1) environment/ecosystem/habitat
2) crisis/disaster/diminishing resources
3) awareness/literacy/education/research
4) change/mobilize/enact/solution/sustainability

As the layout of the above terms shows, there are four key components to the definition: 1) a term that emphasizes that we live in a shared ecological community, 2) a term that cautiously but forcefully states that we are living in a time of ecological crisis, 3) a term that invokes education and literacy as a way to enact crucial change, and 4) a term that emphasizes that practical change is both possible and desirable. While many of the exact terms above are very likely to come out through brainstorming, what is most important is that the definition addresses each of these four categories.
APPENDIX B: Carbon Footprint Calculation Exercise

This exercise involves two parts. First, the facilitator demonstrates how to use the online carbon footprint calculator (http://footprint.wwf.org.uk/) by calculating the carbon footprint of Jane Eyre or a similar literary icon. Second, students use the same calculator to measure their own carbon footprint. The purpose of this exercise is to provide a fun model for participants of how to use the carbon footprint calculator with their students and to emphasize the vast difference between the average carbon footprints of modern and nineteenth-century people.

Part One: Calculating Jane Eyre’s Carbon Footprint

The facilitator offers a brief background on Jane Eyre (an early nineteenth-century governess turned rural gentlewoman) or their chosen literary personality, then asks participants to guess the numbers to input in the carbon footprint calculator. This will require participants to suggest and briefly debate approximate numbers for meat-eating, water use, and carbon emissions in the average life of a nineteenth-century gentlewoman. Neither facilitators nor participants need use Jane Eyre as their example. Many literary figures, such as Oliver Twist, William Wordsworth, or Lemuel Gulliver, will do. Jane Eyre provides a good example, however, because she lived in an early industrial society and participants can easily quantify her carbon footprint by referring to the plot of Charlotte Brontë’s novel Jane Eyre.

Part Two: Carbon Footprint Self-Calculation

The facilitator leaves the carbon footprint calculator (http://footprint.wwf.org.uk/) on the classroom projector and writes the web address on the board. Participants use the calculator on their laptops and mobile devices or take turns using classroom computers. The survey takes about five minutes to complete. For instructors outside the UK, some minor adjustments may have to be made because this particular calculator was designed for the UK. The WWF has not yet designed such a calculator for Canada; for a list of countries that do have their own calculator, visit http://wwf.panda.org/how_you_can_help/live_green/footprint_calculator/. The calculation allows participants to quickly accumulate data that will prove valuable for the subsequent line-up and reflection activity.

Takeaway

The major lessons to be gleaned by participants, and those which they should impart on their own students, are: 1) a nineteenth-century individual such as Jane Eyre had a drastically lower carbon output than most people today, and 2) people are generally surprised to find that their carbon emissions are higher than they had guessed. If the latter conclusion is not reached, facilitator should simply emphasize that this is a good thing and this group is already well-attuned to their environmental responsibilities.
APPENDIX C: Implementing Environmental Literacy in the English Classroom and Beyond Worksheet*

*As a way of modelling ecologically responsible teaching practises, facilitators may wish to distribute this worksheet online and encourage participants to complete it on their mobile devices.

**Instructions for workshop participants:** Below you will find examples for how to implement environmental literacy in the English classroom and across disciplines. In the section marked, “Your Ideas,” please note at least one suggestion for how to implement EL in your home discipline and one suggestion for how instructors across disciplines might implement EL.

**Implementing EL in the English classroom:**

1) **Teach ecological content.** Teach poems like T.S. Eliot’s “The Waste Land” and books like Cormac McCarthy’s *The Road* from an ecological angle. Show students that the environment has long been vital to literary culture.

2) **Attend local literary events.** Keep it local. Bring students out to eco-friendly literary events in your area—small-press chapbook launches, eco-poetry readings, tours of nearby used bookstores. If there are no such events in your area, organize some yourself!

**Implementing EL across disciplines:**

1) **Book swap programmes.** Do not capitulate to the bookstore’s mandate to sell new books. Encourage students to recycle books by exchanging with students who have taken the course in previous years.

2) **Technology-free Tuesdays:** Have a chat with your students about technology. Explain the phenomenon of eWaste, showing pictures of the massive technological dump sites in countries such as Ghana and China. Emphasize that every time you upgrade that mobile device you are creating toxic waste. Even charging your phone demands precious energy. As a result, we should all do a bit more to use less technology. Bracketing specific days and times to avoid technology is a great first step. It’s good for the eyes too!

3) **Online assignment submissions.** This one is pretty simple: the more we encourage paperless instruction, the more trees and healthy air we save for future generations.
Your Ideas:

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References