The ESSA program

Mainstreaming strong sustainability and agency into teacher education

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The ESSA program

• Who we are
• How we did it
• The results
• Further planes
In the ESSA program we explore ways for teacher educators and their institutions ...

... to initiate a systematic and thorough implementation of strong sustainability and agency ...

... into their syllabi and working practices.
New demands from Science and Society

- Strong sustainability
- Agency

Teacher Education 1.0

- Syllabi
- Methods
- Approaches

Classroom

- Plans
- Lessons
- Examples

Teacher Education 2.0

- Syllabi
- Methods
- Approaches
1 Understanding strong sustainability

- **UNSUSTAINABLE**
  - Economic growth first and last.

- **LESS UNSUSTAINABLE**
  - Minimise impacts: reduce, reuse, recycle.

- **STRONGLY SUSTAINABLE**
  - All social and economic development within planetary boundaries.

**CURRENT PARADIGM**
- More damaging
- Damaging
- Less Damaging

**NEW PARADIGM**
- Rejuvenating
- Optimal
“All social and economic development within planetary boundaries”
Unsustainable

Sustainable

Lower consumption

Higher consumption

Sustainability matrix
1. Sustainability matrix

- **Unsustainable**
  - Higher consumption
  - Lower consumption

- **Sustainable**

NU 2012 Gothenburg
1

Higher consumption

Lower consumption

Unsustainable

Sustainable

Sustainability matrix
Higher consumption

Sustainable

Unsustainable

Lower consumption

What is necessary to know?

How should we address these issues?

Sustainability matrix
New demands from Science and Society
• Strong sustainability
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How should we address these issues?
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NU 2012 Gothenburg
Global Hectares and Eco-Footprints of Nations

1. The concept of a global hectare (gha) is a useful tool to measure and compare the ecological footprint between persons or countries. If the global hectares were shared in a fair way, everyone would all have access to, in round figures, the size of about four football fields (1.5 gha) or the size of about four football fields (3 gha) for different nations. In Figure 1, study the table and data for the year 2002.

![Table of global hectares and ecological footprint](image)

<table>
<thead>
<tr>
<th>Country</th>
<th>Population (Million)</th>
<th>Global Hectares (Gha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norway</td>
<td>5</td>
<td>1.2</td>
</tr>
<tr>
<td>Switzerland</td>
<td>8</td>
<td>1.4</td>
</tr>
<tr>
<td>Japan</td>
<td>132</td>
<td>4.0</td>
</tr>
<tr>
<td>Australia</td>
<td>23</td>
<td>2.0</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>62</td>
<td>1.8</td>
</tr>
<tr>
<td>South Africa</td>
<td>48</td>
<td>1.5</td>
</tr>
<tr>
<td>India</td>
<td>1.17 billion</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**Task**

You and your class have been selected to represent your country at an International Youth Conference about Lifestyles, eco-footprints and Fairness. As preparation for this conference you will work in groups of 3–4 people with the goal of coming up with smart, strong and wise arguments that should influence the choices and lifestyles of young people in other countries.

**Option 1**

You live in a developed country. You have learnt that the ecological footprint of wealthy nations is increasing and is far beyond what is sustainable. Write a letter to learners in a developing country informing them of the consequences of their way of life. Suggest to them sustainable ways of living that could help reduce their ecological footprint.

**Option 2**

You are in a developed country. You have learnt that the ecological footprint of wealthy nations is increasing. Write a letter to learners in a developing country informing them of the consequences of your way of life. Inform them of the choices that you can make and those you have made to reduce your eco-footprint at individual, societal and national levels.

Which sustainability practices would you encourage people in other countries to maintain in order to help reduce their ecological footprint?
New demands from Science and Society
• Strong sustainability
• Agency

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The ESSA programme

- Lesson ideas and approaches for the classroom.
- A tool for discussions on enlarged implementation of sustainability issues in teacher education.
essa on line
an open interactive internet platform

- On line courses for teacher educators and trainees
- Living resource of tools, methods and approaches
- Global ESD community of practice
programme 2012-2014

ESSA on line

Workshops for teacher educators in Africa and Asia

Nagoya DESD 2014
UN Decade of Education for Sustainable Development
Lesson ideas for the classroom.

A tool for discussions on enlarged implementation of sustainability issues in teacher education.
Understanding systems

System levels in our biosphere

- Cell
- Organism
- Ecosystem
- Biosphere
Using models

- Linear flow
- Recycling
- Homeostasis
Planetary boundaries
Ecological Footprint

Introduction
The ecological footprint is a measure of the demand on the Earth's ecosystem services and natural resources by the human population and to assimilate associated waste. Each person has a footprint that reflects the area of productive space that is required to support their lives and to absorb their waste. Ecological footprint is a measure of our dependence on nature and an indicator of sustainability (adapted from www.footprintnetwork.org).

Working process
The eco-footprint is very useful for education and when making lifestyle comparisons. It is also quite a complex and advanced concept; you need knowledge in a number of subject areas. We recommend the necessary skills and that they are connected to the internet. Prepare for a south west example.

1. Introduce the eco-footprint concept to learners to gain a basic understanding of how a footprint is calculated. Ensure learners have access to computers that can access www.footprintnetwork.org.

2. Introduce the concept of global hectares to explain that a certain footprint is from the land required to support a person in the development of the ecosystem.

3. When the learners are familiar with the concept, introduce how to find a fair and sustainable distribution of the planet Earth. In this example, the learners are divided into groups of 3 or 4 and are asked to develop a fair distribution of the global hectares. It will be a two-stage approach and learners are expected to discuss the concept of fairness with one another.

Global Hectares and Ecological Footprints of Nations

Worksheet 1

Worksheet 2

Worksheet 3

Worksheet 4

Eco-footprint and Fairness

Background
The idea of the personal eco-footprint differing greatly within countries and regions across the world. In this example, two cities have been selected to represent your country at a graduate level. These are Bishkek and Ulaanbaatar, which are compared to the city of Washington, DC. Both the cities have the same population but are located in different regions. In this example, the city of Bishkek has a much lower footprint than the city of Ulaanbaatar due to its lower resource consumption and lower levels of pollution.
Ecological Footprint

Ecological footprint is now widely used around the globe as an indicator of environmental sustainability.

1. What is an ecological footprint? Write down a short definition of the concept.

   ____________________________

2. The ecological footprint is often divided into sectors according to the main services these areas provide. Look at the illustrations below and give a short description of services we can get from these areas.

   a. Bioproducive Land

   ____________________________

   b. Bioproducive Sea

   ____________________________

   c. Energy Land

   ____________________________

   d. Built Land

   ____________________________

   e. Biodiversity

   ____________________________
Global Hectares and Ecological Footprints of Nations

1. The concept of a global hectare (gha) is a useful tool when we compare the size of the ecological footprint between persons or countries. What is a global hectare?

If the global hectares were shared in a fair way between all citizens of the world we would all have access to, in round figures, two global hectares per person (= 20,000 m² or the size of about four football fields). In fig. 1 you will find figures on the average eco-footprint for different nations. In fig. 2 you can see the trend on how they have developed since 1961. Study the tables.

<table>
<thead>
<tr>
<th>Country</th>
<th>Population (millions)</th>
<th>Eco-footprint (gha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>3</td>
<td>8.3</td>
</tr>
<tr>
<td>United States</td>
<td>308</td>
<td>8.0</td>
</tr>
<tr>
<td>Sweden</td>
<td>9</td>
<td>5.9</td>
</tr>
<tr>
<td>Norway</td>
<td>5</td>
<td>5.6</td>
</tr>
<tr>
<td>Germany</td>
<td>82</td>
<td>5.1</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>61</td>
<td>4.9</td>
</tr>
<tr>
<td>Botswana</td>
<td>2</td>
<td>2.7</td>
</tr>
<tr>
<td>South Africa</td>
<td>49</td>
<td>2.3</td>
</tr>
<tr>
<td><strong>Available Global hectares</strong></td>
<td><strong>6.7 billion</strong></td>
<td><strong>1.8</strong></td>
</tr>
</tbody>
</table>

1. Why do countries have different eco-footprints? Give three good reasons.

2. What has happened with the eco-footprint over time? Describe the trend and come up with three good explanations why.
Eco-footprint and Fairness

Background
The size of the personal eco-footprint differs greatly, both within countries and between countries. If fairly distributed every person should have access to approximately two global hectares (gha) each, but in reality we are far from that goal. What could be done in order to reduce these inequalities?

Task
You and your class have been selected to represent your country at an international Youth Conference about Lifestyles, eco-footprints and fairness. As preparation for this conference you will work in groups of 3–4 people with the goal of coming up with smart, strong and wise arguments that should influence the choices and lifestyles of young people in other countries.

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“However conceived, described, or analyzed, …

… sustainability is the issue of our time,…

…all others being subordinate to the global conversation now under way about …

…whether how, and under what circumstances the human experiment will continue.”
The Mission

Worksheet 1

You have been appointed by the Planetary Council to plan and take part in the greatest adventure in the history of mankind. You shall equip a giant spaceship to make a journey into space and the future. These are the conditions:

- The journey will last for 6000 years.
- You will have access to a shining sun throughout the journey.
- No more than 100 persons are allowed onboard the ship at the same time.

What will you bring?
The Mission

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What will you bring?
The Parts and The Whole

A Holistic Approach to Environmental and Sustainability Education

WORKSHOP TODAY
11h00
Anthro 2