The Sustainable Backpack

Implementation of Education for Sustainable Development in Norwegian schools

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Content

• The Sustainable Backpack - aim and background
• Education for Sustainable Development in the Sustainable Backpack
• Discussion of possibilities and challenges
Sustainable backpack

- to promote pupils and students understanding and awareness of sustainable development and global environmental challenges
- to give them competencies which can help them to find solutions to current and future environmental problems
Strategy plans for Education for Sustainable Development

UNESCOs International Implementation Scheme for the Decade of ESD

Directorate for Education and Training

External collaborators

REFERENCE GROUP

Schools (Teachers & school leaders)

School projects

7 Regional Coordinators and supervisors
School projects
2013/14

174 schools
Educational level

- 1-4: 38.2%
- 5-7: 48.8%
- 8-10: 29.0%
- Vg1: 15.7%
Number of students involved

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
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<tr>
<td>&lt;20</td>
<td>6.5%</td>
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<tr>
<td>20-30</td>
<td>15.7%</td>
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<tr>
<td>30-50</td>
<td>19.8%</td>
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<tr>
<td>50-100</td>
<td>22.1%</td>
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<td>100-200</td>
<td>20.7%</td>
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<tr>
<td>200-300</td>
<td>6.5%</td>
</tr>
<tr>
<td>Other</td>
<td>8.8%</td>
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NATURFAGSENTERET
Nasjonalt center for naturfag og oppfølgingen

natursekken.no
Research Questions

**RQ1:** What are the teachers’ experiences from participating in the Sustainable Backpack?

**RQ2:** How is Education for Sustainable Development implemented in schools through the Sustainable Backpack?
Data

1. Online survey answered by 287 teachers participating in the Sustainable backpack 2011/2012 (n=70) and 2012/2013 (n=217)

2. Reflection notes from teachers participating in the Sustainable backpack
RQ1: What are the teachers’ experiences from participating in the Sustainable Backpack?
How has participating in the Sustainable Backpack, influenced teachers

Understanding of ESD
- None: 2
- 2: 11
- 3: 49
- Large extend: 38

Engagement with ESD
- None: 2
- 2: 13
- 3: 57
- Large extend: 28
What have you emphasized more after participating in the Sustainable Backpack?

- Local environment as classroom
- Education for sustainable development
- Higher focus on inquiry
- Defined learning goals from competence aims
- Higher focus on basic skills
- Higher focus on assessment for learning

[Bar chart showing the percentage of responses for each option]
What did you gain from attending regional seminars?

- Supervising of our school project was useful
- Information about DNS useful
- Academic lectures were useful
- The seminars were useful for my project
- Sharing experiences was useful

<table>
<thead>
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<th>Not agree</th>
<th>2</th>
<th>3</th>
<th>Agree</th>
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<td>Supervising of our school project was useful</td>
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<td>7</td>
<td>31</td>
<td>60</td>
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<tr>
<td>Information about DNS useful</td>
<td>3</td>
<td>13</td>
<td>32</td>
<td>52</td>
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<td>Academic lectures were useful</td>
<td>2</td>
<td>13</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>The seminars were useful for my project</td>
<td>2</td>
<td>10</td>
<td>47</td>
<td>41</td>
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<tr>
<td>Sharing experiences was useful</td>
<td>6</td>
<td>18</td>
<td>39</td>
<td>38</td>
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</table>
What is your reason for not attending regional seminars?

- Time pressure: 60 No, 40 Yes
- Geographic - travel distance: 85 No, 15 Yes
- Expenses for substitute teacher: 88 No, 12 Yes
- Not applicable: 89 No, 11 Yes
- No need: 92 No, 8 Yes
- Travel expenses: 98 No, 2 Yes
RQ2:
How is Education for Sustainable Development implemented in schools through the Sustainable Backpack?

1. Inter- or multi-disciplinary teaching
2. Assessment
3. Collaboration with external actors
4. Integration of the local environment & society
INTERDISCIPLINARY/
MULTIDISCIPLINARY
Number of Subjects Included

Number of subjects

1% 19% 15% 26% 16% 11% 9% 3% 2% 0% 5% 10% 15% 20% 25% 30%
1 2 3 4 5 6 7 8 9 10
Subjects included

- Science: 99.0%
- Social Science: 70.0%
- Sports: 52.0%
- Norwegian: 49.0%
- Math: 38.0%
- Art: 37.0%
- Food & Health: 36.0%
- Other: 12.0%
- English: 7.0%
- Music: 6.0%
Number of Teachers Involved

<table>
<thead>
<tr>
<th>Number of Teachers Involved</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>2</td>
<td>22%</td>
</tr>
<tr>
<td>3</td>
<td>18%</td>
</tr>
<tr>
<td>4</td>
<td>15%</td>
</tr>
<tr>
<td>5</td>
<td>11%</td>
</tr>
<tr>
<td>&gt;5</td>
<td>31%</td>
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ASSESSMENT
Has assessment-criteria been developed for the project?

53% Yes
47% No
Assessment forms

- Oral assessment of a group of students: 56% Yes, 49% No
- Oral assessment: 42% Yes, 58% No
- Individual oral assessment: 35% Yes, 65% No
- Written assessment: 31% Yes, 69% No
- The subjects involved in the project have been assessed separately: 29% Yes, 71% No
- The subjects involved in the project have been considered together: 27% Yes, 73% No
- Individual written assessment: 25% Yes, 75% No
- Written assessment by a group of students: 12% Yes, 88% No
COLLABORATION WITH EXTERNAL ACTORS
External actors

- NGOs: 31%
- Museums, science centers: 32%
- University / college: 23%
- Teams / clubs: 21%
- Environmental consultant/municipal: 25%
- Businesses: 24%
- Have not used external expertise: 4%
Contributions from external actors

- Informed about opportunities in the area: 53% informed, 47% not informed
- Conducted part of project: 53% conducted, 47% did not conduct
- Participated in the preparation and planning: 45% participated, 55% did not participate
- Courses for teachers: 24% conducted courses, 76% did not conduct
- Conducted the entire project: 10% conducted, 90% did not conduct
Outcome from collaboration with external actors

- Increased teachers' competences: 73% increase, 27% decrease
- Motivating for teachers: 73% increase, 27% decrease
- Motivating for students: 71% increase, 29% decrease
- Related the school closer to local environment and society: 66% increase, 34% decrease
- Increased the students' awareness of local environment and society: 61% increase, 39% decrease
- Inspired to sustainable development locally: 45% increase, 55% decrease
LOCAL ENVIRONMENT AND SOCIETY
Use of the local environment

- Local environment as classroom
  - Nothing: 1
  - 2: 5
  - 3: 18
  - High degree: 71
  - Not sure: 6

- Education for sustainable development
  - Nothing: 4
  - 2: 7
  - 3: 40
  - High degree: 43
  - Not sure: 6

- Higher focus on inquiry
  - Nothing: 4
  - 2: 13
  - 3: 41
  - High degree: 40
  - Not sure: 2

- Defined learning goals from competence aims
  - Nothing: 7
  - 2: 15
  - 3: 46
  - High degree: 30
  - Not sure: 2

- Higher focus on basic skills
  - Nothing: 6
  - 2: 20
  - 3: 50
  - High degree: 21
  - Not sure: 3

- Higher focus on assessment for learning
  - Nothing: 7
  - 2: 28
  - 3: 44
  - High degree: 16
  - Not sure: 5
There has been a lot of work associated with this project, but it has been educational and given us an opportunity for continuing commitment to exploring our community.

The funds from the Sustainable Backpack have been the push we needed to get going. We now have many ideas as to how we can continue to develop and adapt new curricula.
I have gained a lot from my participation in the Sustainable Backpack. It has been hectic at times, but these types of projects give a boost and increase engagement. Not at least because my students have been engaged in the project.

During our participation in the Sustainable Backpack, it has been satisfying to have the time to create a project of high quality.
Teachers’ request for TPD

- Teaching for sustainable development: Yes (53%) No (47%)
- Inquiry based science teaching: Yes (49%) No (51%)
- Assessment for ESD: Yes (42%) No (58%)
- Species identification: Yes (41%) No (59%)
- Local environment as classroom: Yes (27%) No (73%)
- Basic skills: Yes (12%) No (88%)
Teachers participating in the Sustainable Backpack report that:
- It enhances their **engagement and understanding** of sustainable development to some or large extent
- They have increased use of the **local environment** and focus on Education for Sustainable Development in their teaching
- They find **regional seminars useful**, but request more training in Education for Sustainable Development, Inquiry Based Science Teaching and assessment
- Collaboration with **external actors** had a positive influence on teacher competencies and motivation for teachers and students
Challenge

Making school projects sustainable after teachers have been participating in the Sustainable Backpack
Conclusion

These results indicate that the Sustainable Backpack has been a constructive measure on the way to enhancing awareness and competencies for teachers in primary and secondary education.

However, in order to succeed with Norway’s strategy for Education for Sustainable Development, is it essential that multiple teachers are engaged in and own their school projects and are able to incorporate good assessment practices in both the cognitive and affective domain.
Acknowledgement

• Associate professor Øystein Guttersrud (Norwegian Centre for Science Education)– for support on quantitative analysis

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