Integrating Sustainability into Project-based Teaching

Regional Seminar on Education for Sustainable Development (ESD) in Action in Asia-Pacific (MTT Project)

12-14 July 2010
Bangkok, Thailand

Presented by,
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Arts-ED, Penang, Malaysia
What Do We Mean by Sustainable Development?

Development which is able to maintain or even enhance the level of local resources and make it available for the benefit of future generations.

Responsible development can help in the recovery or revitalization of lost or damaged local resources.
Traditional Cultural Capital & Resources

- Natural Environment
- Local products from natural resources
- Local livelihood and enterprise
- Vernacular knowledge & skills
- Social/Religious organisations, events
- Micro structures etc.
Children & Youth
Engaging with Local Community Capital

Young people 10-18 explore their cultural and historical identities through creative arts initiatives conducted in their community
myBALIKpulau
Heritage Education Program

A Mapping
of Cultural Capital by Young People
2005 - 2006

Project Design: Liew Kung Yu
This project is a Creative Initiative to Integrate Formal and Non-formal Knowledge at Local Level.
Creative Mapping of Local Knowledge and Resources

Mapping involves identifying, documenting & connecting local knowledge and resources (natural environment, artifacts, buildings, people, historical/technical documents, stories, ways of working etc.)

Systematic mapping of a local site helps students develop an impression of the community as a complex network where their environment, their knowledge and practices, and livelihood are interdependent.
How to Map Local Knowledge and Resources?

1. Teacher/Facilitator identifies traditional resources in locality
2. Participants are given an overview of local culture, history, geography, economics of the locality
3. **Training workshop:** Participants are taught research and documentation skills in photography, interview methods, mapping techniques etc
4. **Field Trip for Data Collection and Analysis:** Research at chosen site to investigate a local resource and assess threats to the sustainability of the resource.
6. **Problem analysis** from a historical, geographical, social and economic perspective
7. **Creative outputs** that can communicate reflections on the value of the resource and challenges to its sustainability
Involves Local Agencies in Project

Sustainable Heritage through the Arts

- Heritage Organisations
- Land Office
- Village Internet
- Public Library
- Public Schools
- Community
- Artist
- Traders
- Resource Persons
PROJECT CYCLE - 2 YEARS
The project consisted of several interrelated sub-projects:

1. Balik Pulau Building Inventory
2. Data Collection on Balik Pulau history & documentation of 20 sites
3. Mapping cultural heritage assets in Balik Pulau
4. Project-Based Learning in Schools
5. Training of Young Tour Guides

Participants
20 children aged 11-16 years from 5 different schools in the Balik Pulau district

Staffing: 1 project coordinator, 2 artist, 3 facilitators

Duration
2 Years
Types of Sub-Projects

PROGRAMS

Discovery Walks
- Half-day Programs
  - Awareness raising

Creative Arts Workshop
- One-Week Programs
  - Knowledge & Skills

Research Workshop
- 1-3 Months Programs
  - Documentation & Interpretation

- Creative Output

  Exhibitions/Demonstrations
  Products/publications
  Advocacy & Sustainability
Sequence of Activities within each Sub-Project

Workshops

1. Team Building
2. Discovering the locality
3. Skill training in necessary tools
4. Data Collection & research
5. Creative output
Workshop 1  Warm Up Games

Team building among community of children
Workshop 2  Documentation Techniques
Workshop 3  IT Workshop
Workshop 4

Research & Interview Techniques
Mapping Cultural Heritage Assets

- Design routes for walking heritage trail
- Illustrations, photo shoot, map drawing
On-site research with community

- 20 sites were chosen which including trades, food, heritage buildings, agriculture, religious buildings etc
- Interviews, observation, documentation by writing & photography, hands-on activities were used to
Heritage Building Inventory

Identify the different period of heritage building, architecture value and activities of buildings

Traditional Malay House

Town House
Research on Cottage Industries
Training of Young Tour Guides

Training for students tour guides to prepare them to conduct tours of their own research sites to Balik Pulau schools students

Bring peers on tour at paddy field area

Introduce to trader in town
EXAMPLES OF DATA DOCUMENTATION
1st Interpretation

Myself, my Town

My Name Tag

Wong Boey Kuan

myBALIKpulau
PROGRAM PENDIDIKAN WARISAN

My Post Card

myBALIKpulau
My Self
My Family

2nd Interpretation
Nenek, Datuk dan Emak

3rd Interpretation My Town

Pejabat Daerah
Kedai Perak
Pasar
Roundabout
Station Bus
Rumah No. 100
**SUNGAI & SAWAH**

Di kampung Titi Teras terdapat sebatang sungai. Sungai ini merupakan sebuah tempat yang tenang dan tempat yang sering dikunjungi orang untuk menangkap ikan. Antara jenis ikan yang terdapat di sungai ini ialah ikan sepat, keli, haruan dan lain-lain lagi. Air dari sungai ini asalnya dari sebuah bukit yang berdekatan. Ia adalah sungai semulajadi.

Sungai ini mengalirkan air ke sawah melalui tali air. Tali air ini sentiasa dibuka. Ia hanya akan ditutup jika tali air sedang dicuci. Air dari sungai mengalir ke dalam sawah melalui lubang.


**Proses-proses yang terlibat adalah seperti berikut :**

1. **Tanah dibajak**
2. **Benih dicuci**
3. **Benih direndam**
4. **Tunggu sehingga benih tumbuh**
5. **Serakkan benih**
6. **Sembur racun serangga selepas 2 bulan**
7. **Taburkan baja**
8. **Sembur racun rumput selepas 2 minggu**
9. **Sembur racun serangga selepas 2 bulan**
10. **Padi masak**

Hasil padi akan dijual kepada sebuah kilang yang bernama Gok Peng yang terletak di Seberang Prai.

**Kumpulan penyelidik:** Aliah Afifah, Nur Fartini, Siti Maryam, Nur Ain

**Kumpulan fotografi:** Boey Kuan, Jian Hooi
CREATIVE OUTCOMES & DISSEMINATION
MOBILE EXHIBITIONS TO SCHOOLS & PUBLIC
PUBLICATIONS: A Map and newspaper on Cultural Capital of the District
Heritage Walks & Treasures Hunts

5 PROJEK
Heritage Education Program

Supported by

Organized by

District Office
District Library
Case Study – Project Based Learning in School

A Study on Fishing in Kuala Jalan Baru Village Balik Pulau, Penang

Subject: Geography
Sub-topic: Traditional Economic Activity

Target Group:
• Students (Age 15)
• 5 Fishing Families

Time involved
Duration: 6 months

Location
The fishing village of Kuala Jalan Baru

Local Resource selected
The river and coastal environment as an economic asset

Critical problem or threat investigated
Tension between growing fishing industry and pressure on natural environment
Objectives of Field Exercise

1. Identify the status of fishing as a family career
2. Identify how natural heritage supports fishing
3. Identify the various problems faced by fishermen presently
4. Data analysis of economic evolvement of 5 fishing families over two generations.

What Tools Were Used to Conduct the Study?

1. Walkabouts and site visits
2. Observations
3. Photography/Sketches
4. Interviews
5. Existing statistics/reports
6. Illustrations and sketch map
Sequence of Project

1. Teacher identifies the location and interviewees

2. Training workshop in research & documentation tools (photography, interviews, maps etc.)

3. Preparing questionnaires

4. Field trip and research at the chosen site.

5. Evaluation and interpretation of data

6. Preparation of the folio
1. Identifying Site and Resources

2. Skills Training

3. Field Research & Data Collection
## 4. Data Interpretation

<table>
<thead>
<tr>
<th>Data Collection</th>
<th>Information Sources</th>
<th>Supporting Documentation</th>
<th>Analysis</th>
</tr>
</thead>
</table>
5. Data Evaluation

<table>
<thead>
<tr>
<th>Critical situation of traditional resource</th>
<th>Cause?</th>
<th>What is lost?</th>
<th>Perceived gains</th>
<th>Effects on community</th>
</tr>
</thead>
</table>
6. Creative Interpretation - Folio

- Bar Charts (occupational changes over 2 generations)
- Topographical Maps (landforms)
- Problem Analysis (threats on fishing industry)

Maps (geographical location of site)

Topographical Maps (natural landform and land use)

Bar Charts (occupational changes over 2 generations)
## Learning Outcomes

**Infusion of WHE/ESD into Geography Folio Project**

<table>
<thead>
<tr>
<th>Previous folio format</th>
<th>New folio format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple data collection –</td>
<td></td>
</tr>
<tr>
<td>Data was collected to provide statistics for population, livelihood charts</td>
<td>Comparative data – to measure change of occupation /livelihood over 2 generations.</td>
</tr>
<tr>
<td>Landforms studied in isolation</td>
<td>Correlating natural landform to fishing as a traditional industry</td>
</tr>
<tr>
<td>Presentation of facts and figures –</td>
<td>Data is connected to social analysis- Relief map serves as inventory of traditional resources and as environment impact assessment.</td>
</tr>
<tr>
<td>Relief maps and population statistics presented as geographical census.</td>
<td>Livelihood changes reflect on challenges faced by the fishing community.</td>
</tr>
</tbody>
</table>
## Learning Outcomes

### Infusion of WHE/ESD into Geography Folio Project

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</thead>
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<tr>
<td>Sustainability was a general topic in the syllabus</td>
<td>Sustainability brought closer to home for the students by studying real threats facing resources within their own community.</td>
</tr>
<tr>
<td>Minimal engagement with community, only statistical and general problems inquiry.</td>
<td>Deep engagement with community through interviews, oral stories on problems faced by small fishermen, personal feelings and experience, impact on their future.</td>
</tr>
</tbody>
</table>
Evaluation of non-formal field exercise

How different is this field exercise from classroom teaching?

<table>
<thead>
<tr>
<th>Classroom Teaching</th>
<th>Field exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only teaching facts</td>
<td>Facts have a context</td>
</tr>
<tr>
<td>Focused more on techniques and formula</td>
<td>Related more to daily living and culture</td>
</tr>
<tr>
<td>Teaching/Learning dependant on reference books provided by school</td>
<td>Learning in real context for both teachers and students</td>
</tr>
<tr>
<td>Only cover general &amp; national issues</td>
<td>Covering local community issues</td>
</tr>
<tr>
<td>No values-education included</td>
<td>Values such as empathy, rights, responsibility were raised</td>
</tr>
</tbody>
</table>
Problems or difficulties encountered as a teacher:

As teachers we are not aware of environment, resources and materials in the locality.

We lack of training/practice in writing syllabus to infuse ESD concepts.

We lack of facilitation skills to carry out student-centred and community-centred projects.

Activity viewed as irrelevant by school authorities and students, because not part of examinable text.

Most teachers are unwilling to spend personal time to carry out field exercise unless there are incentives.

Isolation, no support from peers and school authorities.
Review in Teacher Training & Pedagogy:

- Working on the principle that knowledge is intrinsically integrated.
- Training teachers to modifying syllabus to incorporate ‘sustainability perspective’ in teaching and learning.
- Adopting an interdisciplinary approach and work in collaboration with experts from other fields.
- Upgrading teachers skills in ‘facilitation’ and ‘research & documentation tools’.
- Giving more prominence to application and analysis of knowledge in the field (in addition to information banking in the classroom.)
- Engage learners in daily life and local environment through field trips, interviews, site visits, projects using accessible and child-friendly tools.
Review in Attitude & Perceptions:

• Changing attitude of teachers to practice beyond the classroom by providing teacher training in ‘real’ settings.

• Help teachers/learners identify and document the interconnectivity of disciplines (cultural history, environment, society, economics etc.)

• Transform perceptions of teachers/learners towards appreciation of local culture and environment (traditional ways of working, local resources and local products).

• Produce teachers/learners with a sense of social responsibility through ‘community/environment engagement projects’.
Thank You

Sacred Heart Secondary School,
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in cooperation with

arts-ED

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