Siddharth Shah & Dorothy Missingham  
The University of Adelaide  

Optimising Problem Solving: Students Adapting the RSD so that it Would Speak to Students
OPTIMISING PROBLEM SOLVING:
STUDENTS ADAPTING THE RSD SO THAT IT WOULD SPEAK TO STUDENTS

SIDDHARTH SHAH & DOROTHY MISSINGHAM
SCHOOL OF MECHANICAL ENGINEERING, THE UNIVERSITY OF ADELAIDE
Design, Graphics & Professional Practice

- Hand-drawn sketching
- CAD (Computer Aided Design)
- Creativity
- Product Design
- Oral & Written Communication
- Problem Solving
- Teamwork
- Research
- Project Management
THE COURSE GROUNDING

- Situated in active, inquiry based learning
- Grounded in a social-cultural constructivist environment
- Heavily influenced by Freirean concepts of democratic learning
- Informed by Mezirow’s theory of transformative learning
Experienced tutors devising DGPP design project topic

Tutor Selection Process
OPTIMISING PROBLEM SOLVING (OPS)

Engineering Method

RSD\textsuperscript{7}

OPS

Background  Implementation  Reflections
THE DEVELOPING OPS FRAMEWORK (2014)

Background

The Journey

Implementation

Reflections
THE DEVELOPED OPS FRAMEWORK

“When in doubt, return to the centre”
INTRODUCING OPS TO STUDENTS

OPS Facets

<table>
<thead>
<tr>
<th>A. Define &amp; Specify problem</th>
<th>Identify the problem- what does John really want?</th>
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<tbody>
<tr>
<td>B. Find &amp; Reflect</td>
<td>Reading- looked, skim read – check spelling. intuition- have you seen something similar</td>
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<tr>
<td>C. Generate &amp; Evaluate</td>
<td>Comparing , cross ref to itsialf</td>
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<tr>
<td></td>
<td>Introducing ourselves</td>
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<td></td>
<td>Sorting, differentiating, assigning, classifying</td>
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<td></td>
<td>Logical reasoning, critical analysis- looking closely</td>
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<tr>
<td></td>
<td>Speaking /discussion. Listening– throwing out ideas- someone writing down</td>
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</tbody>
</table>

Sarah’s Lecture

John’s Lecture
PUZZLE

Background

The Journey

Implementation

Reflections
ENGINEERING EMERGENCY

Background

The Journey

Implementation

Reflections
The Engineering Method

WHAT WE DO

Client Brief
Research
Alternatives
Recommend
Decide
Evaluate

Find + Reflect
Define Problems + Specifications
Generate + Evaluate
Organise + Manage
Communicate + Apply
Analyse + Synthesise

OPS nested within
The Engineering Method

Background
The Journey
Implementation
THE PENROSE STAIRS OF DGPP SUCCESS

Research skills framework (OPS)

Facilitated co-creation environment for tutors and students

Knowledge transfer through tutor team

Student willingness to engage in peer learning

Background

The Journey

Implementation

Reflections