Peer Tutoring in Conceptual Design
Principles and Application

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Outline

♦ What is peer tutoring?
♦ How does it fit into conceptual design?
♦ Evaluating its success....
What is Peer Tutoring?

- More senior students (tutors) help their less experienced counterparts.
- How? By facilitating group sessions in which certain topics or problems are discussed, without:
  - Doing the work for the students, or
  - Explaining it to them as if the peer tutor were a teacher!
Facilitating Group Sessions

- Facilitating means: getting everyone else to say their bit and to think, without having to do any work yourself!
- The facilitator holds the group together and makes it work for itself.
- The peer tutors must be trained beforehand to help them do this.
How Does it Fit into Conceptual Design?

♦ In design, students must:
  • Define the problem
  • Use their basic knowledge of engineering materials to create a solution to the problem.

♦ Students are generally uncomfortable with this concept - this leaves them less able to tackle a substantial design project without the help and intervention of available teachers or experts.

♦ Peer tutoring helps them to THINK FOR THEMSELVES
Peer Tutoring at Liverpool

- Formal lectures – give out ‘black-box’ problems to be solved in peer groups
- Group discussions with peer tutors for understanding the problems, generating ideas, discussing possible solutions & talking about how to communicate those solutions
- Solutions handed in and critiques given in formal lectures – next exercise handed out
- The students go through the process again...
Evaluating Success….

- Evaluation methods being used:
  - Student questionnaires (student perceptions)
  - Peer tutor focus group (tutor perceptions)
  - Lecturers perceptions
  - Student Marks & Attendance Records
  - Feedback from Staff/Student Committee

- The first semester of the pilot scheme has just finished, and all of the results aren’t in yet…
Peer Tutor Perceptions (1)

Did the students change their approach to design after the groups?

- “Students became more willing to participate”
- “They evaluated and checked their own designs more, and those of other group members”
- “They became less dependent on me for ideas and input”
- “More ideas were suggested during brainstorming sessions”
How did you benefit from being a tutor?

- “I learned a lot about conceptual design from the groups”
- “Better communication skills”
- “Deeper relationships with second years”
- “Enjoyed the group sessions”
- “Skills learnt helped me become more employable”
- “I became more responsible, helping others’ learning”
Student Attendance – Tutor and Student Perceptions

![Bar chart showing attendance percentages by group and tutor/student perceptions.]

- **Student Perception**
- **Tutor Perception**

<table>
<thead>
<tr>
<th>Group Number</th>
<th>% Attendance</th>
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<tbody>
<tr>
<td>1</td>
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<tr>
<td>2</td>
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<tr>
<td>8</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
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Summary

Peer tutoring has been successfully implemented.

Peer tutoring helps students to think for themselves, develop problem solving (and other key) skills, take more responsibility for their own learning and increases their confidence.

The peer tutoring scheme also benefited the tutors, developing their key skills and fostering a more responsible attitude.