Problem-Based Learning in Initial Teacher Education: A Transition to Collaborative Learning

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What is Problem-Based Learning?

- Problems **inspire** and **facilitate thinking** and learning.
- Motivation to solve problems is generated when they are perceived as **relevant** and **important** (Barrett & Moore, 2011).
- PBL, when utilised as a pedagogical approach, has the **capability to generate active learning environments**.

However, within ITE programmes, there is little evidence of the use of PBL to facilitate entire module delivery.
What is Problem-Based Learning?

• The learning that results from the process of working towards the understanding of a resolution of a problem.

• The problem is encountered first in the learning process.

• PBL focuses on students learning, not teachers teaching.

• Often defined as a ‘total’ approach, i.e. not just a technique or a tool.

PBL can therefore be thought of as a small group teaching method that combines the acquisition of knowledge with the development of generic skills and attitudes.

Barrett & Moore, 2011
Motivation

Teaching, learning and assessment approaches are planned as activity and experience and not merely in terms of the acquisition of knowledge – education as a process rather than as a product.

Focus on student teacher learning and to provide them with a challenging, rich and collaborative learning environment (Barrows & Tamblyn, 1980; Margetson, 1997).

Knowledge not a process of reception but a process of construction with students generating knowledge together.
Background to the Study
The Context

- Cross-institutional collaboration – NUI Galway and GMIT.

- Undergraduate concurrent ITE programmes – Mathematics, Design/Technology.

- Year 3, Semester 1 – ‘Curriculum and Assessment’ module taught entirely through PBL.
Implementation

• **4 problems** over the course of the semester, **2 hours contact/wk**.

• Groups of **5-6 students**.

• Working together around a table.

• Some way of capturing **group discussion** e.g. Whiteboard, iPad, flipchart, laptop, etc.

• **Independent work** outside of the 2 hour weekly session.
Aim of Study

• To establish student perspectives on the effectiveness of the PBL-based delivery of the ITE, Year 3, ‘Curriculum & Assessment’ Module, with particular emphasis on:
  ▫ Appropriateness of PBL methodology/delivery
  ▫ Student engagement / enjoyment of learning
  ▫ Positive outcomes V dilemmas
  ▫ Evidence of ‘dialogical knowing’
Hi all,

The following are the times we discussed in the last meeting:

- Monday 3rd November 1-3 Nursing Library Room 3
- Tuesday 4th November 11-1 Nursing Library Room 2
- Wednesday 5th November 5-7 Group Study Room 2 - Library

See Ye Then Guys
Aiding
Methodology

- 25 NUI Galway students, 16 GMIT students (Sept. – Dec. 2014)
- 4 PBLs
  - 8 group submissions for each PBL
- 34 (from 41) students completed a questionnaire (Dec. 2014)
- Learning and collaborative aspect assessed in each PBL
Engagement and Implementation
# Learning and Enjoyment

## Appropriate Approach for Learning

<table>
<thead>
<tr>
<th>No. Of Students (out of 34)</th>
<th>Appropriate Approach for Learning</th>
<th>Enjoyment</th>
</tr>
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<tbody>
<tr>
<td>34</td>
<td>‘Different from any other module in terms of delivery that I have’</td>
<td>32</td>
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<td>‘It was very centred to my learning and gave me great insight into a variety of topics relevant to teaching’</td>
<td>‘Hearing and sharing ideas/thoughts on a specific topic from different angles was really good.’</td>
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<td>‘Very relevant to and based entirely on real-life problems and issues we will encounter as teachers.’</td>
<td>‘I really enjoyed working in groups but it did take up a lot of our time.’</td>
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Some Comments....
# The Learning Process

<table>
<thead>
<tr>
<th>Some Comments...</th>
<th>Positives</th>
<th>Dilemmas</th>
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<tbody>
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<td>‘A lot of problem solving and critical thinking required, and linking subject areas to real-life teaching.’</td>
<td>‘It was a lot of work, time and was difficult but beneficial all the same!’</td>
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<td>‘It was a way nicer way of learning than sitting in lectures and doing an assignment.’</td>
<td>‘I enjoyed aspects such as learning from others. However it can be a struggle getting people to participate.’</td>
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<td>‘Across the PBL module I have been reader, scribe, timekeeper and chairperson. These roles have shown me different aspects of team work and what is really required to collaborate with other people.’</td>
<td>‘Group work drove me mad! Mainly due to some people not pulling weight and it is time consuming.’</td>
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<td>‘Working with different teachers was great. We had never worked with teachers from different subject areas before this.’</td>
<td>‘There was a lot of work to be done for the PBLs and this often took from our other modules.’</td>
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Dialogic Knowing & Learning
Dialogic Knowing

- Dialogic Knowing – the ‘kind of knowing that is generated when people create and re-create knowledge together.’ (Barret & Moore, 2011, p.115)

- Can be constructed by students through ‘creating more democratic social relations, by co-construction, knowledge through co-elaboration, and by the relinquishing of individual control and embracing the shared control of PBL tutorials and the products produced.’ (Barret & Moore, 2011, p.116).
Co-constructing Knowledge through Co-elaboration

- The students referred to (in group submissions and questionnaires) building their knowledge together (group knowledge) through elaborating their own ideas, listening to new ideas from other students, creating linkages, and ‘editing’ their submissions together.

- **Claire:** If I was working independently I don’t if I would have learnt as much or been as creative as my groups were. I loved all the ideas that were put out there and then developed by the group.
Co-constructing Knowledge through Co-elaboration

- Students contrasted this experience (shared/co-construction of knowledge) with the traditional/transmission model of learning associated with lectures.

- **Liam:** I really enjoyed the PBL approach, it was very different to just rocking up to a lecture and taking down notes. It really encourages you to work with others in approaching problems as a group and putting together ideas to solve it.
Co-constructing Knowledge through Co-elaboration

• However, it was **not always an easy process** and the students wrote about their struggles and dilemmas encountered, particularly as this was their first experience.

• **Sinéad:** I enjoyed aspects such as learning from others but at times the group aspect was difficult to manage and it felt all over the place. Particularly on the first PBL, I just didn’t know what to do.
Co-constructing Knowledge through Co-elaboration

• All groups placed significant importance on the ‘editing process’, where the group together validated key ideas, developed them and integrated them for the final submission.

• **Group 2:** We spent a lot of time making sure that we were happy with our ideas first. Then we went off and read to develop these ideas and spoke to teachers in our placement school to get further insight. Putting it altogether was hard but we all took responsibility for key parts and then made sure we were happy with the final submission. It takes a lot of time but we wouldn’t learn half as much from just lectures.
Conclusion
Conclusions

- **ITE students** working together in a PBL context can lead to effective learning.

- Engaging in **interactive, collaborative learning** contributes to **deeper student learning** and **engagement** in the process of learning /dialogical knowing.

- Challenges include **time demands, work load, difficulties in group work, and planning independent meetings.**
Go raibh míle maith agaibh!

Questions?