Team Teaching in Senior Secondary Maths and Science

Amanda Watkin, Anne Mignone & Jason Loke
Our Process

Initially...
First ideas
Research background
Research questions
Planning

Approaches
Pedagogy
Ongoing planning
Physical environment
Supporting tools

Reflections
Data collection
Student outcomes
Teacher outcomes
What next?
Initial Ideas

• “Faculty must make the shift from being experts to being expert learners, for in the collaborative classroom, teachers and students join in a shared process of intellectual discovery” (Wentworth and Davis, in Leavitt 2006)

• ‘two or more teachers combine classes and share instruction to provide enhanced opportunities and environments for students to learn’

• Innovative pedagogy

• Collaborative design and delivery
Initial Planning

- Leadership
- Partners in crime
- Other staff

People

- Subject choices
  - Timetabling
  - Room allocations

Admin

- What already exists?
- When does it work best?
- How will we know it’s working?

Research

Thou shalt always attend each session.
Initial Research Background


Parrot, P. “Instructional Strategies for Co-Teaching & Inclusion” University of Richmond, EDUC345U


Thou shalt respect each other’s ideas.
Initial Research Questions

• How can we use team teaching to enhance learning outcomes for all students?

  – What team teaching strategies are effective?

  – How can we use team teaching to support student learning?

  – What extra opportunities does team teaching provide?

  – What will we learn as teachers from the team teaching experience?

  – What do dynamic and effective models of team teaching look like?

  – What tools can we use to support team-teaching effectively?

*Thou shalt model open, inquiry based questions.*
Pedagogical Approaches

Musical Chairs

Whole class address

Station 1

Station 2

Peer teaching with teacher support

Whole class discussion / class closure

Station 2

Station 1

The Musketeers

Whole class concept delivery

Whole class discussion / class closure

Breakout group (one teacher)

Concept practice with peer support and one or two teachers as 'drifters' (depending on time)

Thou shalt model engagement and questioning in thy partner’s session.
Ongoing Planning Approaches

Thou shalt plan everything together.
Thou shalt attend all thy team meetings.
Physical Environment Approaches
Supporting Our Approaches

Tara Smale
What type of water was best to have again? Was it slightly alkaline or slightly acidic?
Like · Comment · Unfollow Post · May 6 at 9:10pm
Sasa Sobat likes this.
View all 15 comments
Nick Chirgwin Yep
May 6 at 9:22pm · Like
Andy Asms Slightly alkaline or to maximise the amount of HOCl if using Chlorine BUT too alkaline means the HOCl reacts, reducing the amount available to make water clean.
May 6 at 9:41pm · Like · 32
Write a comment...

Jasmine Kelly
Chemistry in real life part 2: algae bloom. Covering the entire surface and length of a local creek, this creek usually never has algae!
Like · Comment · Follow Post · September 27 at 10:55am via mobile
Ellidi Cassidy likes this.

Nick Chirgwin
An exponential function has appeared!
You use derivatives!
You weren't very effective!

Bec Roberts
http://www.khanacademy.org/math/algebra/algebra-matrices
Explains pretty much everything we need to know on matrices, it's a great resource.
Like · Comment · Follow post · Share · 19 September at 17:23
Jason Loke Asms, Nick Chirgwin, Kelly Ann Bubbles Guthberlet and 3 others like this.
Reflection on Data Collection

• “I like being able to learn from two different people. It changes up each lesson a little and helps me to stay more focussed.”
• “I was scared in case I wouldn’t have been able to have a stronger relationship with my teacher that would allow me to approach them with confidence whenever I needed, however, I realised quickly this wasn’t the case as having two teachers allowed me to approach either of my teachers depending on what I needed to ask.”
• “I can get a deeper understanding of the content being taught. If I don't understanding something taught by one teacher, the other teacher can show his/her way of understanding it.”
• “It allows teachers to explain things in different ways and by them doing that I can choose a way that works well for me”
• “[I] have more opportunity to ask for help, [there are] a variety of explanations – the class is bigger and so [there are] more peers to get help from.”
• “When one teacher is teaching out the front, the other teacher can offer help at tables or clarify certain points and concepts an individual or group may not understand.”
• “The 'a-ha!' moment while learning comes about a lot faster.”
Reflection on Data Collection

• “Not monotonous and highlighted different approaches, which gave a broader and deeper understanding of the maths.”
• "I like one teacher for giving presentations but I ask the other teacher if I need specific help on concepts."
• “I think the combination of these particular teachers was a particular highlight of team teaching. Jason and Amanda were very easy-going, and made every session very enjoyable and engaging. A particular advantage was having the same concepts taught in two different ways. Understanding was a lot deeper because of this.”
• “Having such a large class is a little distracting and can seem quite overwhelming but you get used to it as you become more familiar with the other students. It is also quite difficult to actually tell which students are 'technically' in your class.”
• “Being part of a large group all the time sometimes makes me feel uneasy towards contributing to class discussions.”
• “It could get a bit distracting and confusing at times with different methods from different teachers and lots of students. But I think these issues were dealt with reasonably well.”
• “Make sure you know what teacher to learn concepts from early on; as this will more efficiently let you be able to learn these concepts.”
• “Listen to both explanations of one concept because you might find one of the explanation suits you the best.”
• ”This is great! I get the benefit of two persons’ [sic] knowledge. On the other hand there are now two teachers to satisfy”

Thou shalt encourage student voice and collaboration.
Reflection on Data Collection

- has a positive effect on learning
- allows for deeper understanding of concepts
- provides multiple ways to learn and understand concepts
- provides greater opportunities to connect with a teacher

Student experiences of team teaching

<table>
<thead>
<tr>
<th>Perception</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>has a positive effect on learning</td>
<td>80%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>allows for deeper understanding of concepts</td>
<td>80%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>provides multiple ways to learn and understand concepts</td>
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<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>provides greater opportunities to connect with a teacher</td>
<td>80%</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Reflection on Data Collection

What overall effect do you feel team teaching has had on your learning in the Mathematical Studies course?

- Positive effect on your learning
- No real difference to your learning
- Negative effect on your learning

Do you prefer team teaching instead of the single teacher approach?

- Yes
- No

Having the support of two teachers allows for deeper understanding of the concepts
The different perspectives and explanations provide you with different ways to learn and understand concepts
Reflection on Data Collection

Attendance Data

- Team-taught Maths
- Single teacher Maths #1
- Single teacher Maths #2
- Team-taught Chemistry
- Single teacher Chemistry

Number of unexplained absences per student

0.0  0.5  1.0  1.5  2.0  2.5
Reflection on Student Outcomes
Reflection on Teacher Outcomes

Choice

Support

Collaboration

Collective-experience

Varied-approaches

Professional-dialogue

Planning

Quality-task-development

Innovation

Trust

Relationship

Combined-strengths

Job-satisfaction

Opportunity

Professional-standards

Fun

Reflective-practice

Thou shalt moderate each other’s standards.
What next?

Thou shalt expect the unexpected

TEAM

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