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The University of Adelaide

Research Based Education Meets MELT: Co-created Classrooms for the 21st Century

Research based education meets MELT

Co-created classrooms for the 21st century

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Introduction

- Using **three distinct case** studies we will demonstrate how the research-teaching nexus can provide an ideal environment to embrace co-created curriculum

- Research-based education (RBE) has been embedded into the curriculum

- Research Skills Development Framework (RSD) has been central to scaffolding undergraduate students' experience of research

- Active Cognitive Engagement (ACE) Pentagon has provided the framework for curriculum co-design across different aspects of RBE

Active Cognitive Engagement (ACE) Pentagon – to achieve a common goal

Embark and clarify- do we all understand what we need within our context. What is our problem/challenge? Can we narrow down our problem and define it.

Communicate and apply- share ideas and apply them to specific scenarios or assessment or curriculum development

Analyse and synthesise - what outcomes are desired? How are they achieved?

Evaluate and reflect - the effectiveness of co-created content can be formally evaluated via feedback and reflection from staff and students

Organise and manage - ordering and sequencing of content delivery, assessment and learning outcomes

Find and generate - find common ground and shared goals to generate knowledge/resources

Communicate & apply

Analyse and synthesise

Embark and clarify

Evaluate and reflect

Organise and manage

Find and generate

Case study 1
School of Agriculture Food and Wine, The University of Adelaide

- Plant Production and Global Climate Change III, was proposed in 2016

- Opportunity to use MELT and co-creation methodology.

- Second and third year students and academic staff participated in a co-creation workshop focused

- Aim to designing a specific assessment task

- Learning outcomes already prescribed

Recruiting staff and students

- 37 students invited, 20 students attended
- 6 staff invited, 5 staff attended
- Staff:student, 1:4

Bachelor of Viticulture and Oenology students

Professor Amanda Able

Pre-workshop survey

1. What three words best describe you as a learner?
2. What is one of the best experiences you have had in one of your courses?
3. What is one of the worst experiences you have had in your courses?
4. Rank the following in order of most important to least important in terms of making a good university course:
   - Online content
   - Staff
   - Course organisation
   - Peers
   - Face to face content
   - Type of assessment
   - Group work
5. What sort of assessment tasks are most valuable to you as a learner?

The co-creation workshop

What can we achieve today?

- What students have told me:
  - They wanted to know more about climate change and plant responses
  - Assessment is probably the most important but also the most stressful part of a course

- Our aim is to design an assessment task that meets the needs of students and teachers

Definition:
In education, the term assessment refers to the wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students.

Pre-workshop survey results

Best experiences	Worst experiences
Hands-on, practical	Unhelpful staff
Relevant	Exam hurdles
Well organised	Disorganised
Quizzes and tests	Poor delivery
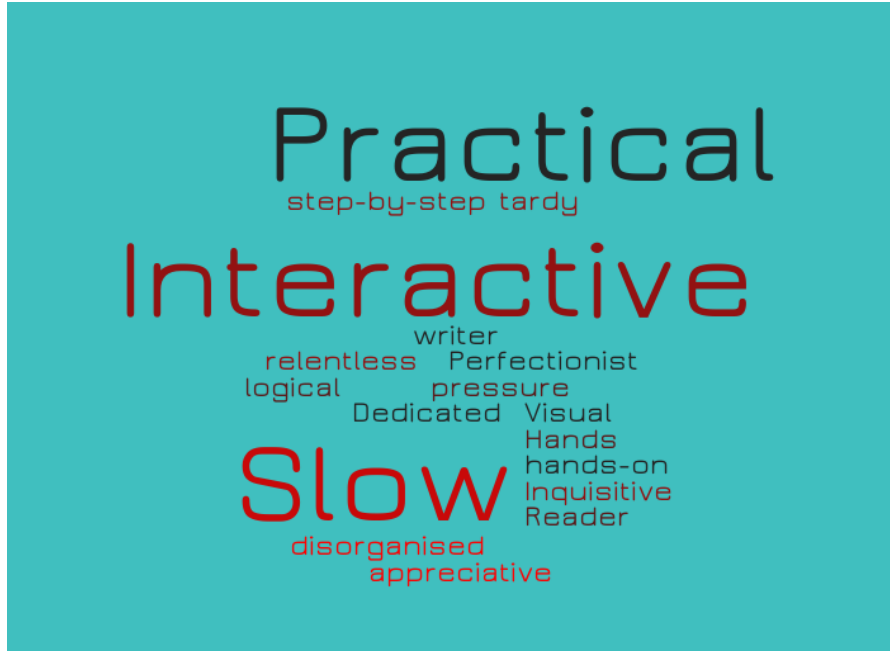
Most valuable assessment:
- No group work
- Mixture of assessment types
- Online tests and quizzes
- Practical, hands-on, field trips
- Resubmission
- Heavy exam weighting

Rank the following components from MOST to LEAST important in terms of making a good university course:

Answered: 7 Skipped: 0

During the workshop

Activity 1. The assessment task

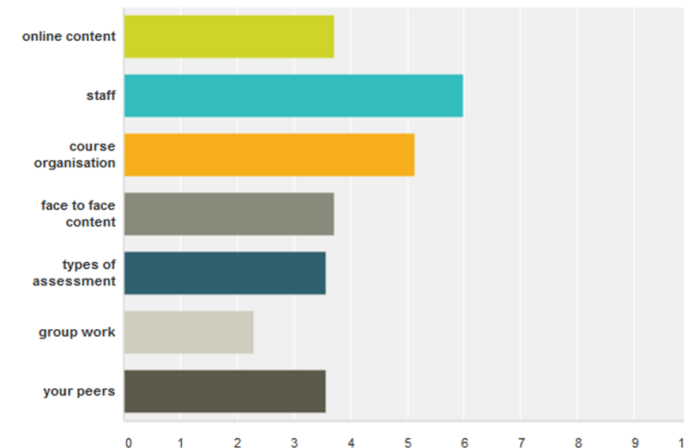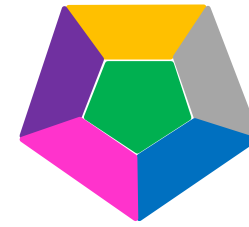| Assessment task	Learning Objective assessed	Percentage weighting
1. Literature Review and workshop participation	• Describe how the climate is changing and explain the natural and anthropogenic causes for climate variation. • Understand the implications of changing climate on plant production in a range of cropping systems • Source and critically analyse relevant peer reviewed literature.	20%
1. Practical report or similar???? What do you think??	• Describe how climate change impacts on key plant processes such as phenology, photosynthesis, respiration and growth. • Understand the implications of changing climate on plant production in a range of cropping systems	20%
1. Online Pre-prac activities	Formative and Summative	15%
1. Final exam	Summative	45%

Activity 2. The rubric

What will a student need to know to complete your assessment?
What information needs to be provided?

	Outstanding achievement	Good achievement	Fair achievement	Poor achievement
Criteria 1				
Criteria 2				
Criteria 3				

During the workshop

What did the students come up with?
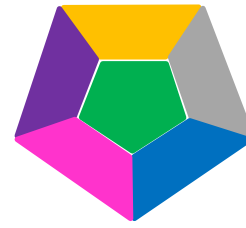
Analyse and synthesise

- Pre-practical activity
- Break the assessment up so that student get some feedback during a content module
- Provide some choice in assessment type
- Use guided question to focus discussion

Part A
- Option 1- Introductory and methods details will be tested by 2 short online tests and quizzes

OR

- Option 2- Prepare an instructional lesson delivered by students for students

PPGCC physiology pre-practical 2017   Resources

Part B
- Option 1- The results (graphs and tables), discussion and conclusions will be assessed by a written report

OR

- Option 2- The results (graphs and tables), discussion and conclusions will be assessed by an oral presentation

< PREV   NEXT >

Intended learning outcome
- Describe how climate change impacts on key plant processes such as phenology, photosynthesis, respiration and growth.
- Describe the implications of changing climate on plant production in a range of cropping systems.

Assessment task (Practical report)
Practical report with optional modes of assessment (written, oral presentation or video submission). Focus on links between climate, physiology and growth.

Teaching and learning activity (Practical experimental activity)
- Measure plant growth responses
- Learn to use scientific equipment
- Experiential learning and observation of plant responses to climate
- Group work

Constructive alignment with pre-existing learning outcomes is possible using a co-creation approach
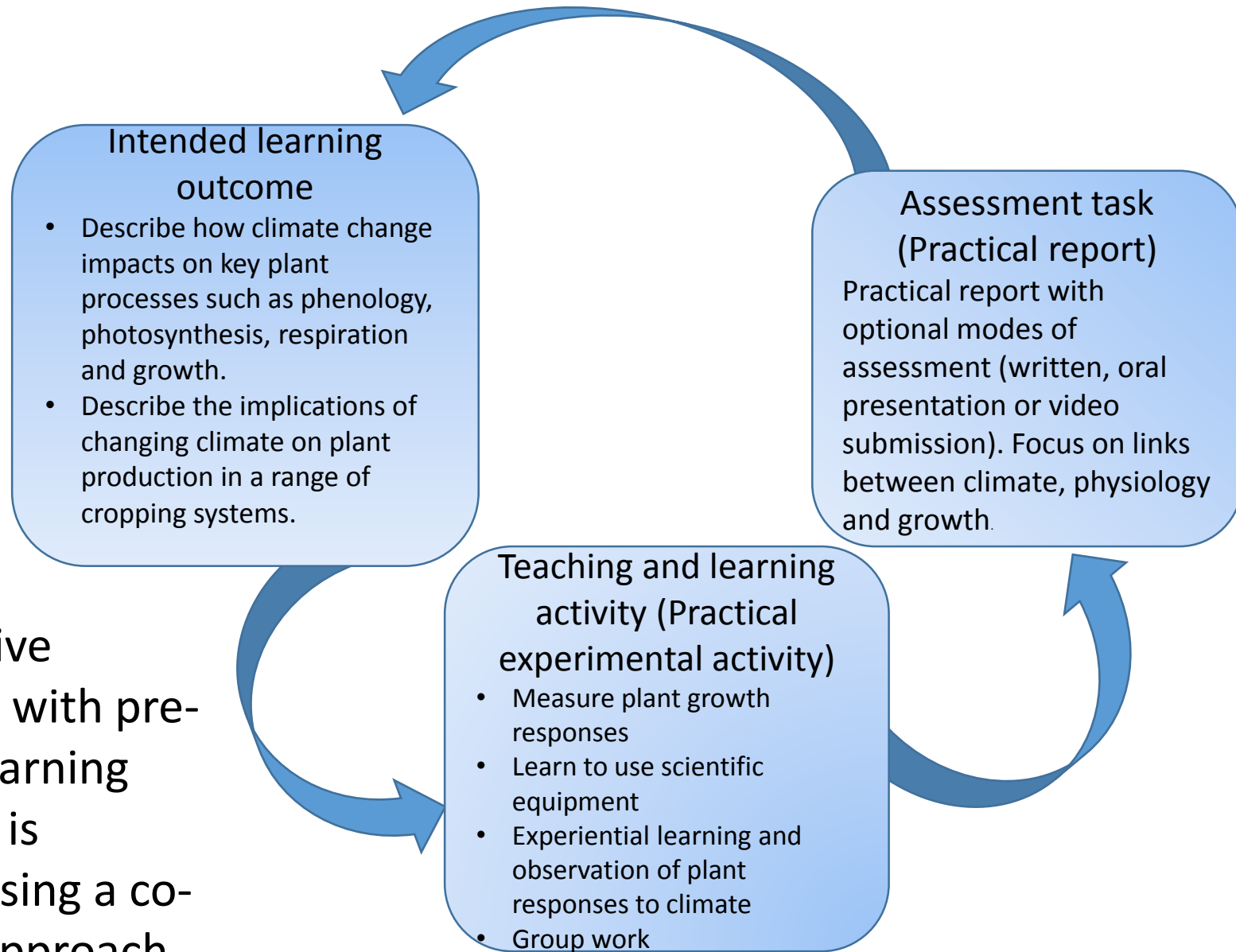
Outcomes

- The assessment task:
  - Emphasised both enquiry-based learning and mastery of key discipline specific research skills and methods
- Co-creation resulted in:
  - Production of unique student centred assessment tasks
  - Successfully addressed the learning outcomes.
- The main challenge:
  - Ensuring a cross section of students in terms of their engagement, motivation and cultural background

"That looks awesome. I really like the option section and if I was presented with this assessment task I would be stoked :) Great effort!

Thanks for doing this! Its so good to see that you care about teaching, and you are always on the hunt for improvements."

Case study 2
Bachelor of Oral Health,
The University of Adelaide

What was the most difficult concept to learn?

Co-created Pre-class Learning Activities

https://www.youtube.com/watch?v=RaK3aBryqqg&t=29s

Pre-class activities

Pre-class activities form the basis of the in-class group application activities.

The group learning process in-class
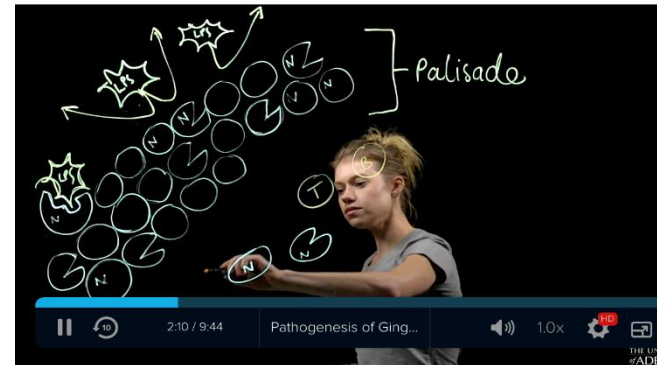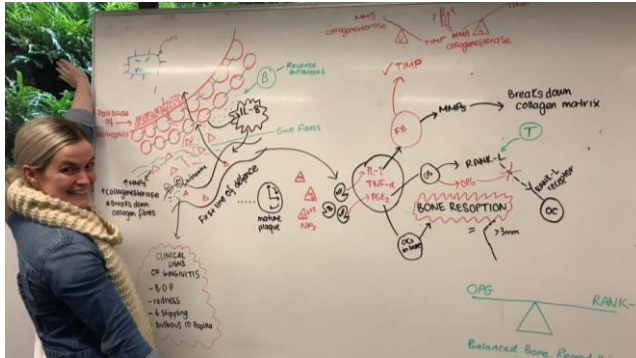
> " Gives a real sense of teamwork being able to collaborate with peers and help each other understand."
>
> "Visual aids or drawing or building some of the more elaborate concepts, getting hands on – loved it! "
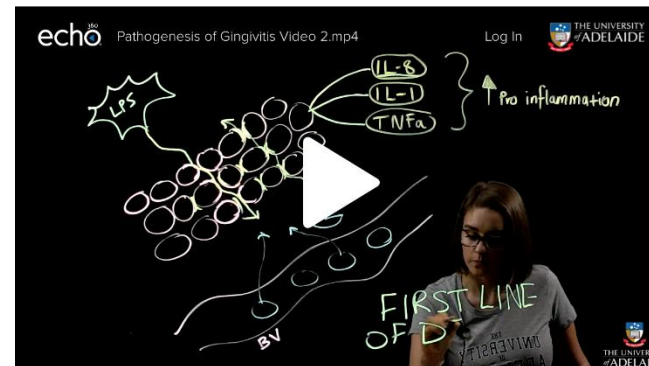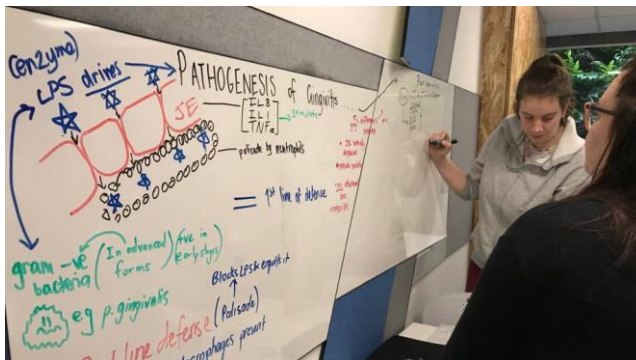
Evaluate

1. Participation rates

Collectors

🔗 Web Link 1 · Responses: 25 · Since 5/31/2017 · **OPEN**

Responses Volume · 5/31/2017 - 6/6/2017
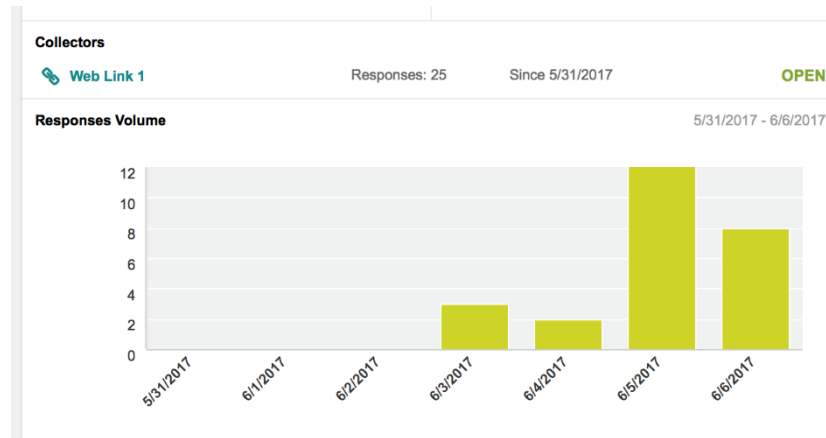
Completion rates 93%

2. Survey Responses

Do you believe the pathogenesis videos that were produced by BOH3 students have helped you break down the concepts of gingivitis and periodontal pathogenesis?

Answered: 20   Skipped: 0
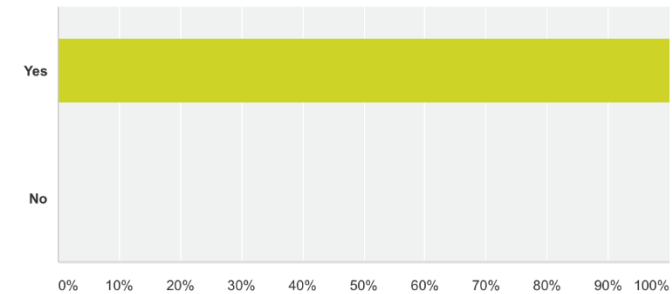
3. Assessment outcomes (Previous Failure rates 20-30%)

Grade	HD	D	C	P	F
% students	37	35	20	7.5	0.5

Focus Group Outcomes

- 2017 BOH 10 students
- 100% agreed that
  - the in-class activities were helpful in learning the content.
  - the hands-on tasks and group work were particularly helpful
  - the pre-class activities made sure everyone was up to speed and at the same level, allowing for an effective in-class group learning experience.

Focus Group Outcomes

- *"created a comforting environment in which no question was too silly. I feel comfortable asking questions in traditional lectures, and large tutorial groups."*
- 100% students felt that the group work and pre-class materials helped motivate them to learn the topics. They felt that group work in class was effective because it made them want to participate
- students enjoyed the peer produced content .They commented that sometimes teachers know the content so well **that it is hard for them to relay it to a student in an easy to understand way.** They felt that the **other students** were able to do this very well.

Case study 3
Faculty of Health and Medical Sciences, The University of Adelaide

Setting the scene

- Aim: to develop 'best practice' guidelines for Small Group Discovery Experience (SGDE) activities

- 48 participants
  - (2:1 student:staff ratio)
  - 3 hour workshop

- Initial discussion on their own SGDE role and experience

2nd yr oral health student

3nd yr oral health student

Psychology lecturer

2nd yr Health science student

Final yr Psychology student

Human Biology SGDE mentor
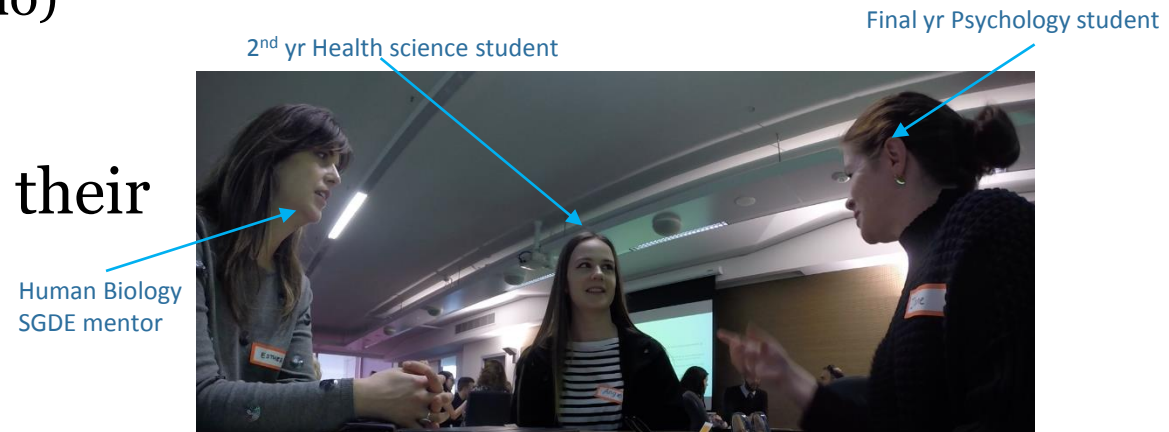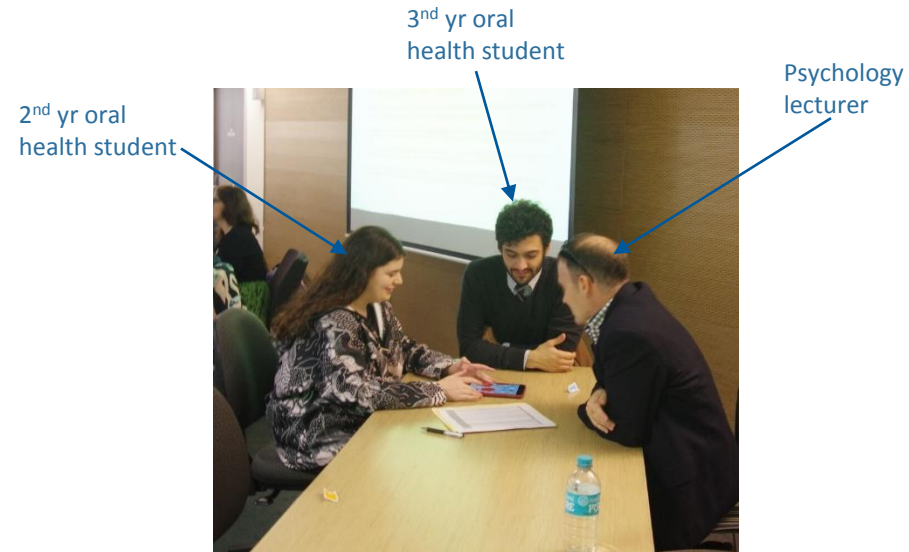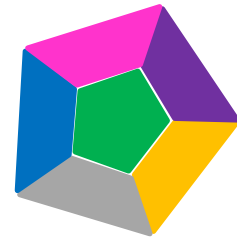
Starting with the basics

Initial task was for each group to answer a series of online questions about how the structure and design of an SGDE – eg, size of grps, assessment approach

https://www.surveymonkey.com/r/SGDEcodesign1

Real time responses

How should SGDE groups be initially

Wl

How is SDGE best assessed? Select one of the choices below

Answered: 17   Skipped: 0

Answer Choices		Responses	
Individual mark		0.00%	0
Group mark		0.00%	0
50% individual/50% group mark		23.53%	4
Peer assessment		0.00%	0
Application of learning should be assessed in a summative assessment		5.88%	1
Should notbe assessed		0.00%	0
Other (please specify)	Responses	70.59%	12
otal		17	

nswer Choices
Assigned by teaching staff
Self-selected by students
This aspect is not importan
otal

nswer Choices
Face-to-face
Online
Mixture of online
Other (please sp
otal
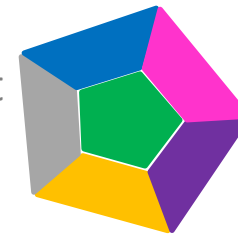
Taking it to the next level

What was the most valuable experience that you gained from your SGDE activities? (list up to 3)
1. Industry insight-real perspectives x5
Working with an expert in the particular field with a link to research
Access to clinicians in a small comfortable environment, accessibility
Novel - not just another lecture, tute
Feedback from students on how they are learning
Working in group/diverse environment x4
Seeing students' personal growth develop
Continuity of staff for the topic - the staff member conducting the SGDE was the one lecturing at the time, and as such was able to help clarify points made in lectures, in the context of what was currently being learnt.
2. Going into greater depth on topics of individual interest
Small groups (less than 10 people)
Authentic assessment that has real world application x7
Establishing a multidisciplinary environment
As an educator, the connection with undergraduate and postgraduate students
Building a sense of professionalism/professional identity - networking and forming contacts
Collaboration
Hearing and gaining knowledge from other fellow students x2
3. Put theory into practice x4
Active participation
Developing group/team work skills such as collaboration and problem solving, and seeing different perspectives
Assesses a range of different skills (multifaceted, ie oral, written etc)
Interactivity between peers and staff x3
Participation in a safe and comfortable environment
Connection with industry and networking
Gaining a sense of self-directed learning/creativity/freedom
To provide students with an opportunity to act as a practitioner, allowing them to learn in a professional context.

List 3 specific aspects of the SGDE that were most effective in helping to achieve the learning outcomes?
1. Don't pay much attention to learning outcomes-small groups important (5-8 work dependent) x3
Small group sizes (<10)
Good group dynamics - needs to have a group that works well together, students speak and listen to each other, and a mentor that is engaged and suitable for goals/task of the SGDE
Online collaboration
Students document their learning and receive feedback from mentors
Feedback from tutors AND students
Student to staff ratio
The size - more interaction with the clinician + each other, everyone can get involved
Combining individual and group work
Collaborative problem solving; group learning process; team dynamics
Real life experience
Learning about personal strengths and utilising them in group discussions
Allowing students to look at the concepts that they have been taught from a different perspective; that of their fellow classmates. Enables students to see concepts as someone else has understood them, potentially increasing understanding.
2. Exemplifying practical relevance x4
Having a mentor to verify independent learning
Clear goals - can be open ended or closed, but should be suitable for the students ambition, student directed
Integrating theory into context from different areas learnt through the course (case studies) x3
Clear instructions and guidance
Regular opportunities to meet with mentors and support staff
Frequency of SGDE (e.g. In med)
Consistent structure and pre-planning
An opportunity to have discussions and learn with an expert from the field
Having a product of the session for students to work on further and later use for revision purposes.
3. Real practitioners involved x4
Some choice within a set list of topics so that it aligns with learning outcomes for the course
SGDE can motivate and attract student by being directly/clearly linked to a graduate outcome/skill used in workplace
Opportunities for applying theory to current events
Efficient use of time
Being able to select own mentors
Goal oriented - active involvement, presentations
Fostering engagement - students actively participating.
Encouraging creativity and expression; sharing of ideas and questions
Study tour
Hearing and learning from other students' opinions and perspectives, allowing greater insight and open mindedness
Again, providing students with an opportunity to think and act as a practitioner in a relevant context

Which specific aspects of the SGDE were least effective in your understanding and application of the topic learning objectives? (List 3 aspects, with the least effective as point 1)
1. Dysfunctional groups, with uneven sharing of workload x2
Lack of peer assessment - only assessing endpoints x2
No practical application of knowledge, especially when the content learned is something that will need to be applied later
Large groups x4
Not knowing what the learning objectives are until the SGDE is finished (e.g. Med)
Very theoretical, based heavily on writing
SGDEs too infrequent
Replication of tutorial
Over reliance on worksheets/Format being too structured
The lack of a product of the discussion and learning.
2. When the tasks are compulsory and people hate going
No structure or clearly defined learning outcomes and no incentive to participate x8
Forced into a narrow focus - focused only on one aspect of topic
Infrequency/lack of relevance to the course itself (e.g. Psychology)
Not compulsory/not weighted - led to students not attending or engaging x2
The intention of SGDE is too implicit
Proper facilities that support real time creation of documents via small groups for whole class review, and discussion of exhibits (eg. Document cameras, microphones, iPads).
3. Not assessed x3
Poor mentor engagement/accessibility
When the discovery isn't relevant to the course or expectations of the students
having the mentor assess the end product (facilitate true collaboration)
Not different to the content learned in lectures and tutorials
Over-reliance on technology
No continuity between sessions
Small group can be largely ineffective/unworkable and may be unchangeable
When there is no obvious link between the theory and the practical task
Lack of overall structure, contact with facilitator - students didn't connect with SGDEs
Mundane activity design
Lack of group communication due to over reliance on individual usage on technology
Infrequency of SGDEs - there was only one in a year. Increasing frequency would increase the importance of how they are viewed by students

Q4 1.5 hours x3
Depends on the objective of the SGDE. Typically 1hr should be fine x2
Context specific - depends on the tasks, goals of the SGDE, amount of work done between sessions
As much as is possible within the workload of the course

Q5 Depends on the purpose/type of task. A more research focused task may need a longer break, closer to 2-3 weeks.
1-2 weeks
Depends on purpose, degree etc. depends on preparation, relevance. Less than 2 weeks.

Q6 Depends on nature of SGDE x3
Blended because this is often the reality, but face-to-face ideal option.
Mixed, but with an emphasis of face-to-face interaction - the online component could be some form of introduction or resource.
Initial face to face interaction to build relationships, online for convenience
Mainly face to face, with some online (choice can work)

Q7
Depends on the course x4
1 per semester
Approximately 48 'sessions', where an SGDE can encompass up to four sessions as needed. Works out to around 2 a term per course.
60 (two subjects per semester over the course of three years) in place of tutorials
6 in 3 years (one a semester)
1 per year (example BOH 3. MBBS 4-6. Psych undergrad - 3)

Q8
50% individual, 50% group and peer assessment x3
combination of everything
Participation/attendance could be worth a small amount.
Peer assessed Formative ... But designed to mirror summative assessment
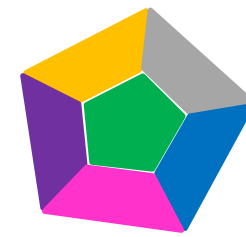Peer review plus group mark
Small assessment, marks for participation, depends on activity, should be a small % of course marks
As it is an "experience", do not want marks to add pressure - encourage risk taking
Combination of peer assessment and group mark
No grade but feedback given
Peer review plus group mark

eymonkey.

d and sha[r]
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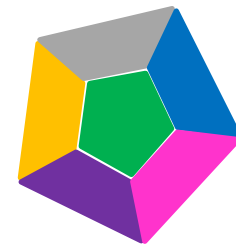[a]nd engagi[ng]

A co-created prototype

Outcomes of Co-Creation Workshop

Valuable and Effective Aspects
- Industry insight – 'real' perspectives
- Authentic assessment
- Real world application
- Putting theory into practice
- Small groups (<10)
- Interaction between staff & students
- 'Novel' – not just another lecture or tute

Least Effective Aspects
- No structure or clearly defined outcomes
- Groups too large
- Not assessed – no incentive to participate
- Dysfunctional groups/uneven workload
- Mundane 'meaningless' activities
- Replication of tutorial – didn't feel 'special'
- No practical application to discipline
  - "Why are we doing this?"

Outcomes of our co-creation

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