

# Enabling online, real-time classroom interactions with digital images to support student learning

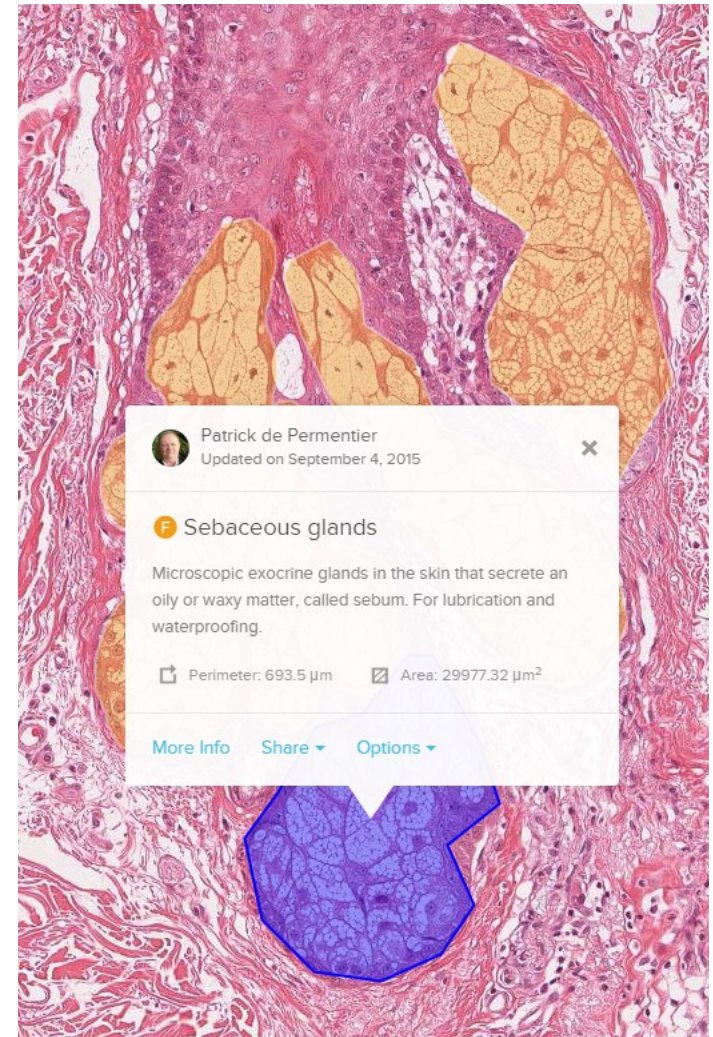
Stephanie Dowdell,  
Betty Kan,  
Nalini Pather &  
Patrick de Permentier



# What is the Slice image bank?

- An online, shared cloud based image repository
- Supports many file types
- Images are contributed from academics around the world
- An annotation tool for marking features

[www.slice.edu.au](http://www.slice.edu.au)

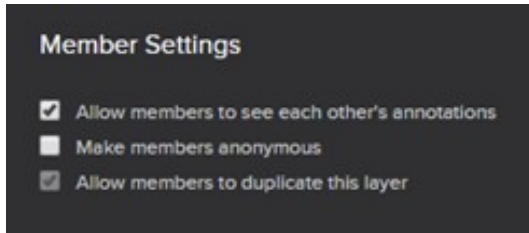


# Our problem was:

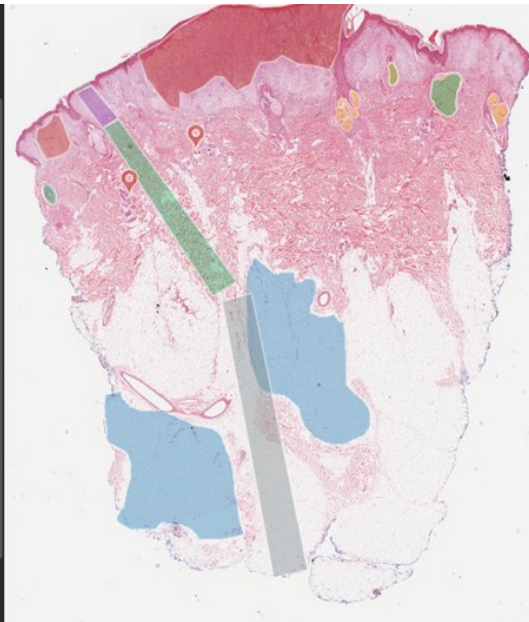
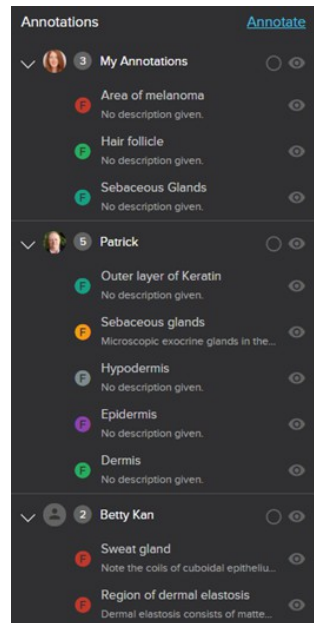
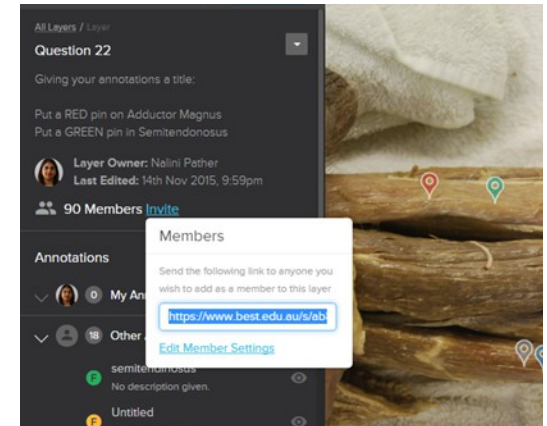
1. Academics had no visibility over student annotations
2. There was no way to provide them with feedback
3. There was no way for students to collaborate with each other

# Improving the functionality:

Invite people to join annotation layers...



Control how they interact  
e.g. anonymously



and whether people can see each others annotations

# Providing feedback in anatomy lectures

The image displays a screenshot of an educational application interface for anatomy. On the left, a dark sidebar contains navigation and information elements: a back arrow, a star icon, an information icon, and a 'TEACH' button. Below this, it lists 'All Layers' with the title 'Musculoskeletal system, Upper limb structure, no disorder, Human(Homo sapiens)', content type 'Macroscopic', and copyright owner 'University of New South Wales'. A 'Layers' section includes a search icon and an 'Add Layer' link, listing four items: 'Question 7' (138 members, 162 annotations), 'Question 8' (118 members, 117 annotations), 'Question 7 - ANSWERS' (1 member, 3 annotations), and 'Question 8 - ANSWERS' (1 member, 3 annotations). At the bottom of the sidebar are 'Get Help' and 'Give Feedback' links.

The main area shows a photograph of a human upper limb dissection. Overlaid on the image are four semi-transparent colored regions: a large red region on the upper arm, a green region on the forearm, a blue region on the hand/wrist, and a smaller blue region on the forearm. Numerous location pin icons are scattered across these regions, with colors matching the regions they are placed on (red, green, and blue). The pins are concentrated in the red and green areas, indicating a high density of user annotations or questions in those specific anatomical areas.

# Moodle:

## Resources for 'Anatomy Revisited'



- Anatomy Revisited Part 1
- Anatomy Revisited Question 1
- Anatomy Revisited Question 2
- Anatomy Revisited Question 5
- Anatomy Revisited Question 6
- Anatomy Revisited Question 7
- Anatomy Revisited Question 8
- Anatomy Revisited Part 2
- Anatomy Revisited Question 15
- Anatomy Revisited Question 16
- Anatomy Revisited Question 17
- Anatomy Revisited Part 3
- Anatomy Revisited Question 21
- Anatomy Revisited Question 22
- Anatomy Revisited Part 4

**50. Anatomy Revisited** - The following will be opened at various times during the lecture

### Part 1

Question 1, Question 2, Question 3, Question 4, Question 5, Question 6

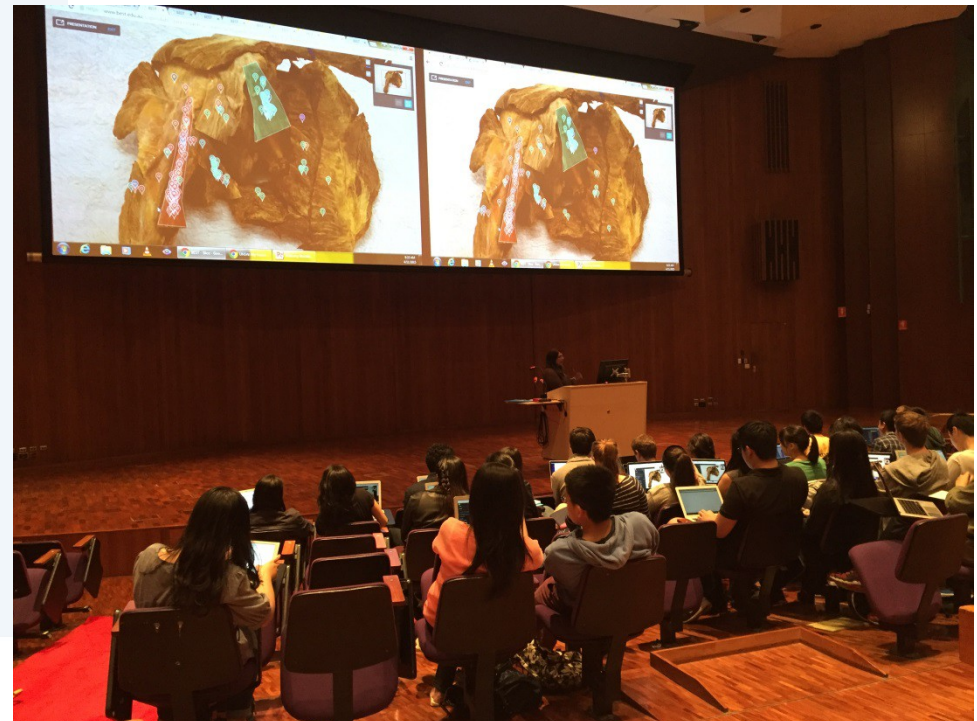
### Part 2

Question 1, Question 2, Question 3

### Part 3

Question 1, Question 2

### Part 4



# Student feedback:

*'Interesting format... was good to see how much I knew compared to rest of the class'*

*'Really fun. Liked the feedback and they way it was staged so we only saw one link at a time'*

*'was able to discuss with my friends but submit my own answer too'*

*'these sessions should be at the end of every course'*

# Correcting misconceptions by gaining visibility

The image shows a digital histology slide interface. The main area displays a histological image of bone tissue with numerous colorful annotations (pins) placed over various cells and structures. The interface includes a sidebar on the left with navigation options (Back, TEACH), a search bar at the top right, and a list of annotations on the left side. The annotations are categorized into 'My Annotations' and 'Other Annotations'. The 'My Annotations' list includes three entries: 'Correct examples of Osteobla...', 'Correct examples of Osteocla...', and 'Correct examples of osteocyt...'. The 'Other Annotations' list includes 'Osteoblast near bone', 'osteocyte', and 'osteocyte'. The interface also shows the user's name 'Stephanie Dowdell' and the number of members '90 Members'.

best SLICE FEATURED MY SLIDES UPLOAD

Search Slice Stephanie Dowdell

Back TEACH

All Layers / Layer

Wed 3pm A&E-A Bone Histology

Click this link to reorientate the view to the correct region for this exercise: <https://goo.gl/r1et0k>

Annotate an example of an:

1. Osteoblast
2. Osteocyte
3. Osteoclast

All of your annotations will be anonymous. Give your annotations a title.

Layer Owner: Stephanie Dowdell  
Last Edited: 23rd Sep 2015, 4:59pm

90 Members [Invite](#)

Annotations [Annotate](#)

3 My Annotations

- Correct examples of Osteobla...  
Building the bone. Need to be loca...
- Correct examples of Osteocla...  
Involved with bone resorption. Mult...
- Correct examples of osteocyt...  
Live within a lacunae that resides ...

229 Other Annotations

- Osteoblast near bone  
No description given.
- osteocyte  
No description given.
- osteocyte



# Facilitating group work in histopathology pracs

The screenshot displays the 'best' software interface for histopathology education. The main window shows a histological slide of colon adenocarcinoma with several regions highlighted in color: green for normal mucosa, yellow for tumour protruding into the lumen, and purple for invasive tumour. A sidebar on the left contains the following text:

**1A: Colonic adenocarcinoma annotation exercise**

Giving all your annotations a title:  
Map the normal mucosa in GREEN  
Map the region of tumour protruding into the lumen in YELLOW  
Map the invasive tumour in PURPLE

Now click on the following link, which will take you to a high power region for you to annotate:  
<https://www.best.edu.au/s/qv49hp9r/czyw1f45?data..>

Place a BLACK pin on normal colonic epithelium.  
Place a GREEN pin on the muscularis mucosae  
Place a RED pin on a malignant gland (adenocarcinoma)  
Place a YELLOW pin on tumour-related stroma  
Place a GREY pin on a capillary *less*.

**Layer Owner:** Betty Kan  
**Last Edited:** 2nd Nov 2015, 10:21am  
**13 Members**

**Annotations** [Annotate](#)

- Betty Kan (owner) 0
- My Annotations 0
- Bonita Gu 1
- Susan Li 0
- Jeffrey Liu 3

Get Help Give Feedback

# Future directions:

- Continued use in interactive lectures
- Formative feedback sessions
- Collaborative learning
- Self-directed learning