Interactive e-learning resources for development of diagnostic abilities in the plant sciences

Amanda Able, Daniel Walker & John Conran
Faculty of Sciences

Why the focus on diagnostic abilities?

- Ability to diagnose and solve problems is integral to science and its applied vocations\(^1\).
- Learning the *process* of diagnosis requires an ability to connect and interpret disparate sets of information through inquiry-oriented learning\(^2\). Successful learning requires *interaction* with and *participation* in that process\(^3,4\) but students also need *scaffolding* and guidance\(^3,5\).

Why an e-learning resource?

- When e-learning resources are designed well, they allow interactivity with many concepts at any one time. Students are also able to access them when it suits them and to reinforce learning in class. Articulate Storyline was used to also capture processes related to common questions our graduates will need to answer such as ‘What plant is this?’ and ‘What is causing this plant disease?’.

An example: Plant identification

FROM THIS

Traditionally, students use a manual key in class BUT

- Often guess or find plant on the internet using iPad but haven’t actually learnt *how to use the key*
- Need thorough knowledge of terminology
- No photo to provide feedback – needs instructor
- Don’t use outside of class

TO THIS

- Participate in the process
- Access & learn terminology
- Immediate feedback

Beta-testing & where to from here?

- Students rated the e-resource as 7/10 and manual key as 5/10 for ease of use.
- 60% preferred the e-resource.
- All indicated they would use the e-resource to refresh their knowledge and practice the process.
- Students liked the manual key because you can see previous decisions more easily. Tracking will be in the next e-resource version.

References:
- Kirkup 2013 *Inquiry oriented learning in science OLT report*
- O’Neill & Dluhy 1997 *J Adv Nursing* 26: 825-832
- Willison 2012 *HERD* 31: 905-919