Evaluation of the role of an assessed collaborative online activity in helping students understand a threshold concept in evolution theory

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Introduction
An online collaborative activity to help students understand a threshold concept in evolution theory was first introduced on S366 (Evolution) as an extension to a face-to-face tutorial activity; in 2010 it was offered as an optional but entirely virtual activity, and following the success of this was introduced in 2011 as an assessed activity, with both participation and observations being assessed in a TMA. The activity was based on the following principles.

- Each student feels personally involved because he/she takes ownership of particular samples
- Each sample is presented visually (as a photograph) so looks more interesting/engaging than tables of figures or text
- Participation of several students is essential for the results to be meaningful
- The first task is quick and simple so student engages straight away
- More challenging tasks follow later (scaffolding effect)
- Full interpretation requires considerable thought (stretches the more able students)

Aims of the Project

- Establish whether engaging in this activity enhanced student understanding of the threshold concept of genetic drift/founder effect
- Explore which aspects of the activity were most important in helping student engagement and understanding
- Explore whether participation improved performance
- Try to establish an evaluation framework for such collaborative online activities
- Export the pedagogy behind this activity to other subject areas

How this will be achieved

- Undertake structured conversations with a sample of students who participated in the activity to explore their attitudes, satisfaction and level of understanding before and after participation in the activity.
- Establish which aspects of the activity enhanced learning for each student interviewed
- Identify aspects of the activity which could be applied in other contexts to enhance learning

Expected Outcomes

- Produce novel assessments which are memorable and enjoyable to participate in
- Highlight the importance of collaboration, by requiring data to be pooled, or compared with that from another participant
- Produce assessment in which the ‘correct’ answer is different for different students, so that answers to assessment questions cannot be plagiarised
- Build on the success of this activity, and produce guidelines on how to make such activities successful
- Explore possibilities of applying same principles to iCMA and OpenMark questions
- Set up a common framework for evaluating online collaborative activities in different Science modules, and to inform interested parties in other subject areas