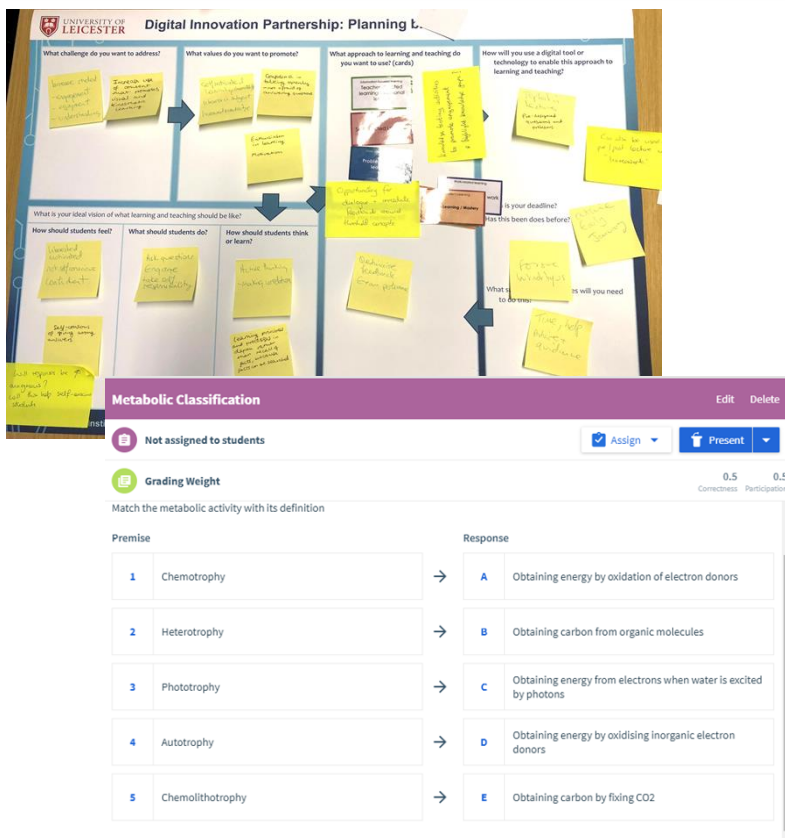


Using TopHat to improve student understanding of threshold concepts

I wrote 20 questions, over the 2nd half of the first semester which focused on developing and testing students understanding of challenging **threshold concepts**.

As a student (of the year 2017/18) I was asked for my own, and my peers, questions and early misconceptions on the content taught to us in the first semester. This gave the academic, Shaun, an opportunity to see the course content from the perspective of an early undergraduate, and we hope produce a useful learning aid for the students of 2018/19 and beyond.



Metabolic Classification

Not assigned to students

Grading Weight: 0.5

Match the metabolic activity with its definition

Premise	Response
1 Chemotrophy	A Obtaining energy by oxidation of electron donors
2 Heterotrophy	B Obtaining carbon from organic molecules
3 Phototrophy	C Obtaining energy from electrons when water is excited by photons
4 Autotrophy	D Obtaining energy by oxidising inorganic electron donors
5 Chemolithotrophy	E Obtaining carbon by fixing CO ₂

The interactive questions were created using the audience-voting system TopHat and will be embedded within the appropriate lectures by Shaun. The questions have a range of formats such as true or false, multiple-choice, discussion and click-on-image. Students can answer anonymously on their phones, tablets or laptops. The delivery of these questions will be piloted in the next academic year (2018/19).

The aim of this project:

The aim of this project was to improve student experience and engagement with learning, and develop their understanding of **threshold concepts** in the microbiology component of Year 1 Biological sciences. **Threshold concepts** are ideas that are central to mastering a topic or discipline. Understanding them is transformative, troublesome, irreversible, disorientating and like learning a new language. (Meyer and Land, 2005). Students perspectives were used to develop questions on threshold concepts.



Reflection:

Participation in this project was a useful revision tool for me, allowing me to develop, with guidance, clear answers to some threshold concepts. The TopHat software was simple to use but gave me an opportunity to participate in digital learning and teaching in a collaborative way. Student feedback on the use of these questions will be obtained when the questions are delivered as part of lectures in Semester 1 2018/19.