



Vertical learning in Agricultural Science: It's all fun and games until...

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As with other courses, the Agricultural/Animal Science degree program has been challenged with students seeing their core and elective subjects as individual learning points rather than a coherent set of experiences that are closely linked and ultimately lead to their development as an animal or agricultural scientist. This atomization of the curriculum is particularly apparent in multidisciplinary courses, such as agricultural sciences, with subjects as diverse as physiology, statistics and business. In addition, concepts and skills learned within one particular year level are often considered as 'completed' rather than as key knowledge for further development in subsequent years.

We therefore wanted to create a learning experience that emphasises the interconnectivity of subjects by providing a real-life, engaging background that will help students look past subjects as 'individual' entities and helps them see the 'bigger picture' of the agricultural and animal science disciplines. To this end we are developing what we call 'the vertical learning environment', a learning environment that ties together the vertical strands that link the curriculum across year levels. This vertical learning strategy is being developed as an integrated suite of online learning experiences for students enrolled in the Bachelor of Animal and Veterinary Biosciences and Bachelor of Agricultural Science degrees.

The vertical learning environment will take the form of a simple interactive 'biosphere' that contains a number of narratives and characters with which the students can interact in different ways, depending on the subject and the task, and this throughout their course. Teaching staff can use the narratives in this biosphere to support and contextualize their learning activities and assessment tasks, and these narratives can easily be expanded depending on the need. In time, the online biosphere will contain a large repository of linked narratives that students will explore during the course of their degree, making the connections between (and relevance of) subjects more explicit. The online biosphere will incorporate elements of gamification, enabling students to make decisions in any given narrative resulting in adaptations to their experience of that narrative. The objective is to increase student engagement, encourage problem-solving and transferable skills, and subsequently develop more advanced discipline expertise.

This discussion paper will report on the development, trial and evaluation of an initial pilot, and invites suggestions and constructive criticism from interested peers. The online biosphere will be trialled in semester 2, 2015, with a prototype biosphere environment consisting of background stories contextualising one narrative and associated problem-solving learning activity relevant to two second year subjects, Animal Nutrition (AGR2AN) and Biochemistry for Agricultural and Animal Sciences (AGR2BAA). These two subjects share a strong disciplinary link that will be emphasised by this common narrative. Evaluating the students' experience of these narrative linkages will be a precursor for the further development of the vertical learning concept across all year levels of the aforementioned degrees.

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