

Keynote Presentations

Designing learning environments that engage science undergraduates: Principles from motivational theory and research

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***Abstract:** Although there are many different motivational theories, they can be categorised into two main approaches: person in context and socio-cultural. Person in context approaches emphasise the individual and cognitive nature of motivation and consider it to be a transaction between the person and their environment. Most motivational theories fall into this category and, taken together, they suggest that student engagement in learning depends upon perceptions of autonomy, control, challenge and a sense of relatedness to others. Engagement also depends upon the extent to which students perceive themselves as efficacious and value the knowledge and skills they are learning.*

Socio-cultural approaches emphasise the social nature and origins of motivation. These approaches consider that motivation has its origins in collaborative practices, is internalised to become individual motivation, and is externalised in subsequent individual or collaborative activity. These emerging approaches suggest that student engagement will be more effectively motivated in environments in which learning is appropriately scaffolded, and in which positive interpersonal relations and shared understanding are emphasised.

Raising the profile of teaching and learning: Scientists leading scientists

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***Abstract:** It has long been assumed that expertise, or profound knowledge in a subject area, is sufficient for effective teaching at the university level. However, lack of student engagement and failure of students to reach set standards have been found to be associated with an inability of academic staff to teach or to construct appropriate assessment components. With this in mind, students are likely to be given less than adequate instruction, reducing their motivation to engage with subject content. This can result in a higher probability of discontinuation in their chosen course of study. Ultimately, student engagement, success and retention can be affected by motivating non-engaged, uninformed academics and the ALTC project 'Raising the profile of teaching and learning: Scientists leading scientists' has focused on ways to do just that.*