

# Learning Analytics

A perfect romance between technology and teaching



Feel like you're talking to a brick wall?  
Dr Bob solves all your engagement problems.



A research story in pictures by  
Dr Robert O'Toole, Senior Academic Technologist,  
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*Useful to me!*


# In search of useful research questions concerning LA and engagement

Dr Robert O'Toole, Senior Academic Technologist


Once upon a time in a University somewhere in England...

A woman with her hair in a bun, wearing a white tank top and a watch, is leaning over a desk. A man with a beard, wearing a pink shirt, is sitting at the desk looking at a laptop. They are both smiling and appear to be in a collaborative work environment. A speech bubble points from the man towards the text.

Hello, I'm an academic technologist. I've got this amazing new set of instruments called learning analytics. Can we use them in your course?

A man with a beard and a woman are sitting at a table in a meeting room. The man is pointing at a laptop screen while the woman looks on. A speech bubble is positioned over the man, containing text. The background is a blurred office setting with a large window.


That's awesome. What learning do you think we should analyse? Have a look at one of my lecture plans and see what we do.




What can we, as  
academic technologists,  
really contribute with  
this fancy new set of  
instruments?



Later that day our intrepid technonauts head off to the Library to find out more.  
But are they armed with sufficiently powerful and accurate research questions?



I'm not sure  
she really  
needs my help!



I don't think this  
is going to work  
out!

The nascent relationship between technology and teaching  
already looks **DOOMED!** Can it be saved? In next weeks edition....

What can we, as academic  
technologists, contribute with this  
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What can we, as academic  
technologists, contribute with this  
fancy new set of instruments?

What do we need to know in  
order to answer that question  
in specific collaborations?

What might research  
contribute to this?

What might research  
contribute to this?

What are the gaps in our  
knowledge and concepts?

What might research  
contribute to this?

# Research Questions?

What are the gaps in our  
knowledge and concepts?



**A real-life example**

**It wasn't like this at all!  
But it could have been.**



## Student engagement literature review

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Vicki Trowler  
Department of Educational Research  
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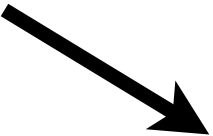
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November 2010

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# “Expected Student Engagement Profile”

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Trowler's summary of Fredricks, Blumenfeld & Paris, 2004 (following Bloom):

### **1. Behavioural engagement**

Students who are behaviourally engaged would typically comply with behavioural norms, such as attendance and involvement, and would demonstrate the absence of disruptive or negative behaviour

### **2. Emotional engagement**

Students who engage emotionally would experience affective reactions such as interest, enjoyment, or a sense of belonging

### **3. Cognitive engagement**

Cognitively engaged students would be invested in their learning, would seek to go beyond the requirements, and would relish challenge



Back working together again, they make great progress. The trick is to describe the “expected engagement profile” of the lecture, and fit learning analytics in to enhance feedback and the design of activities.

# Research questions?

(to enable better ac/tech - teacher - student collaborations)

1. How can/is/should LA be used to “measure” and “increase” students engagement in each of the three dimensions (physical, emotional, cognitive)?
2. How can this map into the existing ways in which good teachers understand and work with engagement?
3. Do most/all/some teachers really base their actions on something that we could represent and analyse as an “expected engagement profile”?
4. Do they do this at multiple inter-related scales? e.g. seminar, lecture, module, programme? - mesa, macro, micro.
5. Do they transfer their understanding and strategies across events (e.g. from lecture to lecture)? - are they critically evaluating as they do so?
6. Do they do this collectively or individually? If collectively, how do they communicate and discuss?
7. How can tech help for each of these processes?