



OLLSCOIL NA GAILLIMHE
UNIVERSITY OF GALWAY



SE
TU

Ollscoil
Teicneolaíochta
an Oirdheiscirt
South East
Technological
University



Durham
University

Threshold Concepts and transformation

Carloalberto Petti, PhD, MA-T&L, SETU and University of Galway

Presentations Structure



- Introduction
- Bioscience Project
- Research Design
- Themes and findings
- Take Home messages



- **What are Threshold Concepts?**

Meyer, J., and Land, R. (2003). Threshold concepts and troublesome knowledge: Linkages to ways of thinking and practising within the disciplines. In: Rust C., ed., *Improving Student Learning – Ten Years On*. Oxford: OCSLD, pp. 412-424.

Troublesomeness and Transformation

Research Questions

- Troublesomeness from a student perspective.
- What is it and how do we recognise it?
- What is “transformation” from a student perspective and how does transformation reflect on (*Micro-and Macro-*)Threshold Concepts?



Bioscience Projects

Background

- Bioscience is *de-facto* based on research principles
- Hands on experimental bases
- Plethora of experiences
- And yet..
- Research-minded students are few and far in between



People generally remember...
(learning activities)

10% of what they read

20% of what they hear

30% of what they see

50% of what they see and hear

70% of what they say and write

90% of what they do.

People are able to...
(learning outcomes)

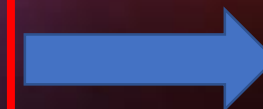
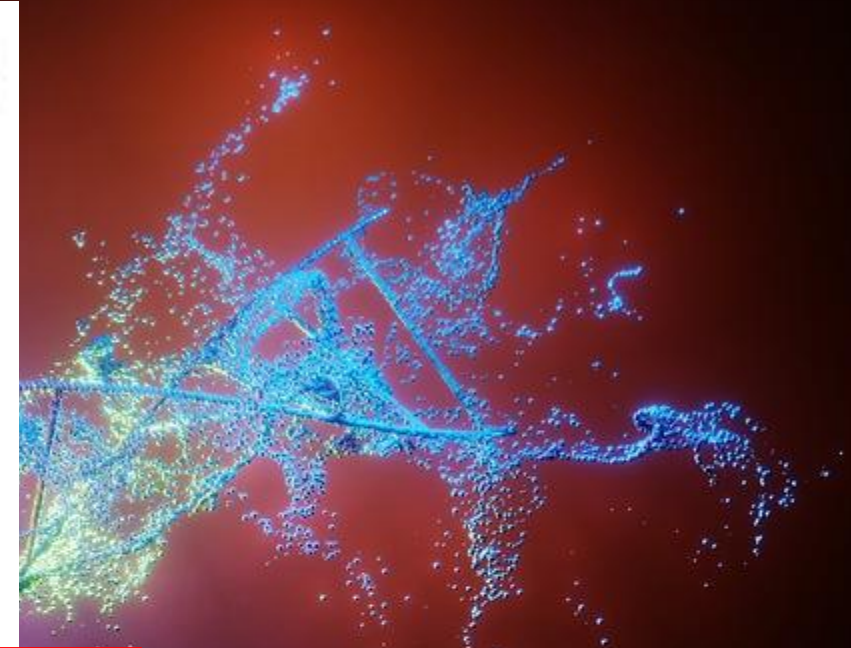
Define List
Describe Explain

Demonstrate
Apply
Practice

Analyze
Define
Create
Evaluate

Passive Learning

Active Learning

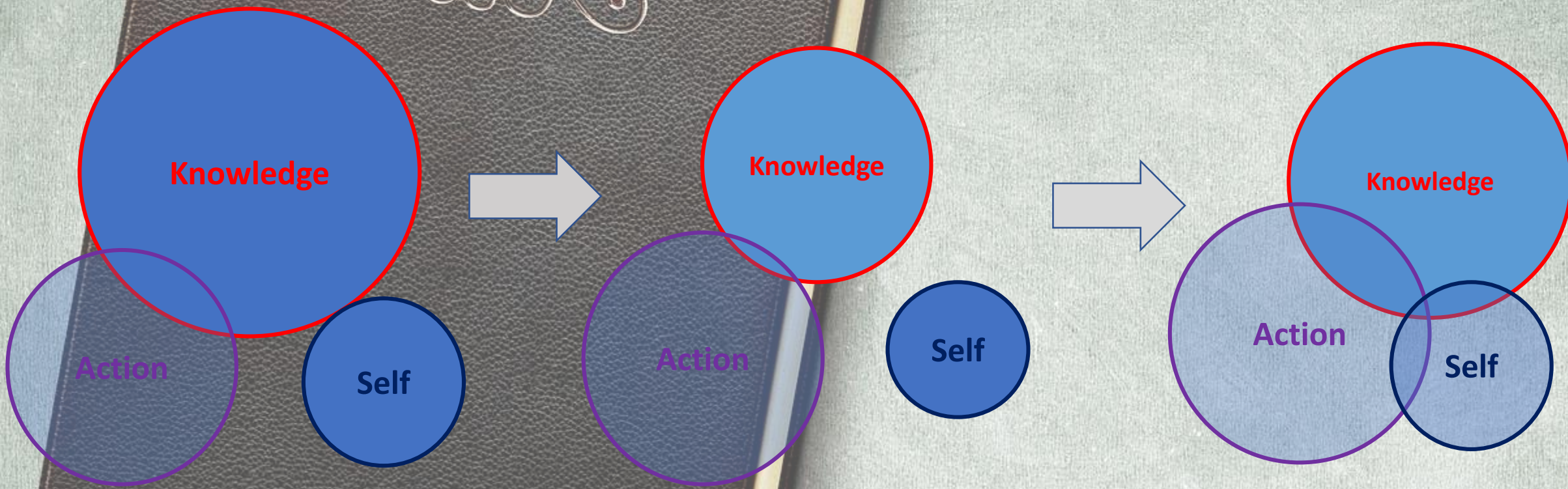


Questionable.....

Theoretical

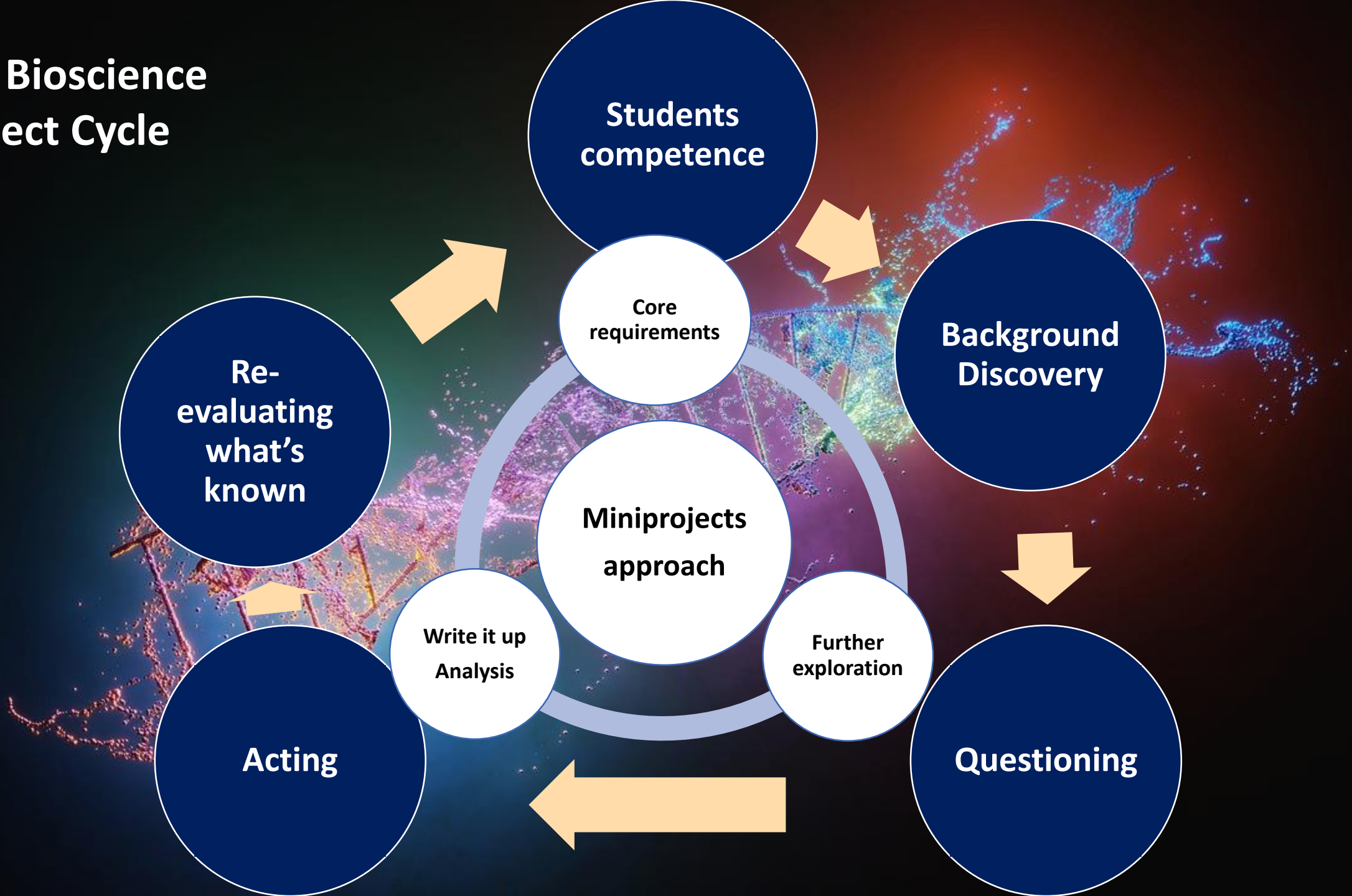
Actual

Desirable



Barnett, R., Parry, G. and Coate, K., 2001. Conceptualising curriculum change. *Teaching in Higher Education*, 6(4), pp.435-449.
Barnett and Coate, 2005. Engaging the Curriculum in Higher Education
Barnett, R., 2007. *A will to learn: Being a student in an age of uncertainty*. McGraw-Hill Education (UK).

The Bioscience Project Cycle



Study Design: Hermeneutic Longitudinal



Data Types from:

- Interviews (3 time points)
- Observation (weekly basis)
- Student Narrative fragments (weekly basis)

Data from :

- Interviews (3 time points)

Constructivist/interpretivist

Preliminary Emerging Themes



- Challenge/Troublesome
- Time Management

- Freedom/independence
- Expectations

- Ghost lecturer support
- Transformation
- Integration

Focus on

**Troublesome:
Student vs TCF**

Troublesomeness as a scaled perception

*Challenging, I feel like.... it's difficult to be more of a negative words, challenging. **The challenge to me is something more that pushes you and difficult more, more challenging pushes you, but all challenges aren't negative,***

*If I say something is challenging, I could take that up as, it's pushing me a little bit farther than where I need to be as far as it is, **it's difficult. That means I am getting bogged down***

Difficult. My head is in the clouds, I don't know what's going on, I get it, yeah.

So, that's how I would describe (i) simple, challenge, complex (and) difficult

Troublesomeness as demands and stress

Dallan, 2022

*Does this scary you that **the concept is difficult?** It more stresses than anything. That's scary, I feel like stressed is the first word that pop in my head **the big word when you find something, yeah, difficult.***

*every time I think of whether something it's **challenging difficult or hard or simple or complex,** I'm always aware that I have a time frame, behind it all, like so, **I have certain amount of my time to know***

the difficulty, is the end of the scale? So it's really, don't go there, stay away from there. One of the reasons is stress. I feel like there's more than one reason for avoid there

If I found something that it's truly difficult. A lot of times be things that aren't within my interest, that's a contributing factor.

Troublesomeness as a language conundrum

*I think one of the things, one of, **when you get, when you finally understand something that you want, struggled with**, the best thing about understanding it is **now you can break it down and digest it in your own words. In your own terms and in your own way,***

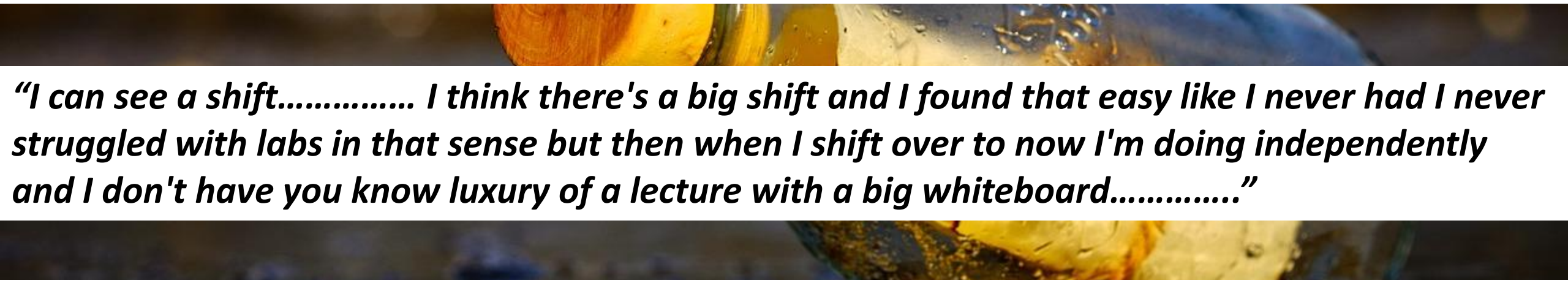
*The jargon language is OK, it very much good... that if it's relevant to the area, then it's all good. Language beyond the jargon language is also important..... understand the basics, tried reading them, **so complex all the words, now come in difficult. So I do think the language that I'm reading does have an impact on whether something's complex or difficult.***

So I do think that there is some sort of relationship between the words the lecturer is using and whether I'm finding something complex or difficult, or simple or challenging.

language structure has a huge impact on whether I find something difficult, complex, challenging or simple.

Take Home Messages

- 1. Difficult concept is a matter of individuality as opposed of generality**
- 2. Student's interpretation differs from a lecturer's view**
 - 1. Scaled approach in students**
 - 2. Intrinsic assumption of negativity with difficulty**
- 3. A corollary of the above is that when transformation occurs has potentially an associated spectrum of dimensionality**



“I can see a shift..... I think there's a big shift and I found that easy like I never had I never struggled with labs in that sense but then when I shift over to now I'm doing independently and I don't have you know luxury of a lecture with a big whiteboard.....”

- 4. Language can be a limited tool to evaluate transformation**

“I'm really bad with language...”



OLLSCOIL NA GAILLIMHE
UNIVERSITY OF GALWAY



Thank you to:

- My students over the years and
- Dr. Jan Smith and Dr. Julie Rattray, never ending sources of inspiration

• **Any Questions?**

