






Marine Biology Fieldwork in a virtual world

Dr Heather Sugden
heather.sugden@ncl.ac.uk
 @hes_1

Dr Sara Marsham
sara.marsham@ncl.ac.uk
 @sara_marine

School of Natural and Environmental Sciences

 @SciencesNCL
 @newcastlemarine
 @NCLDoveMarine



Marine Biology Fieldwork in a virtual world

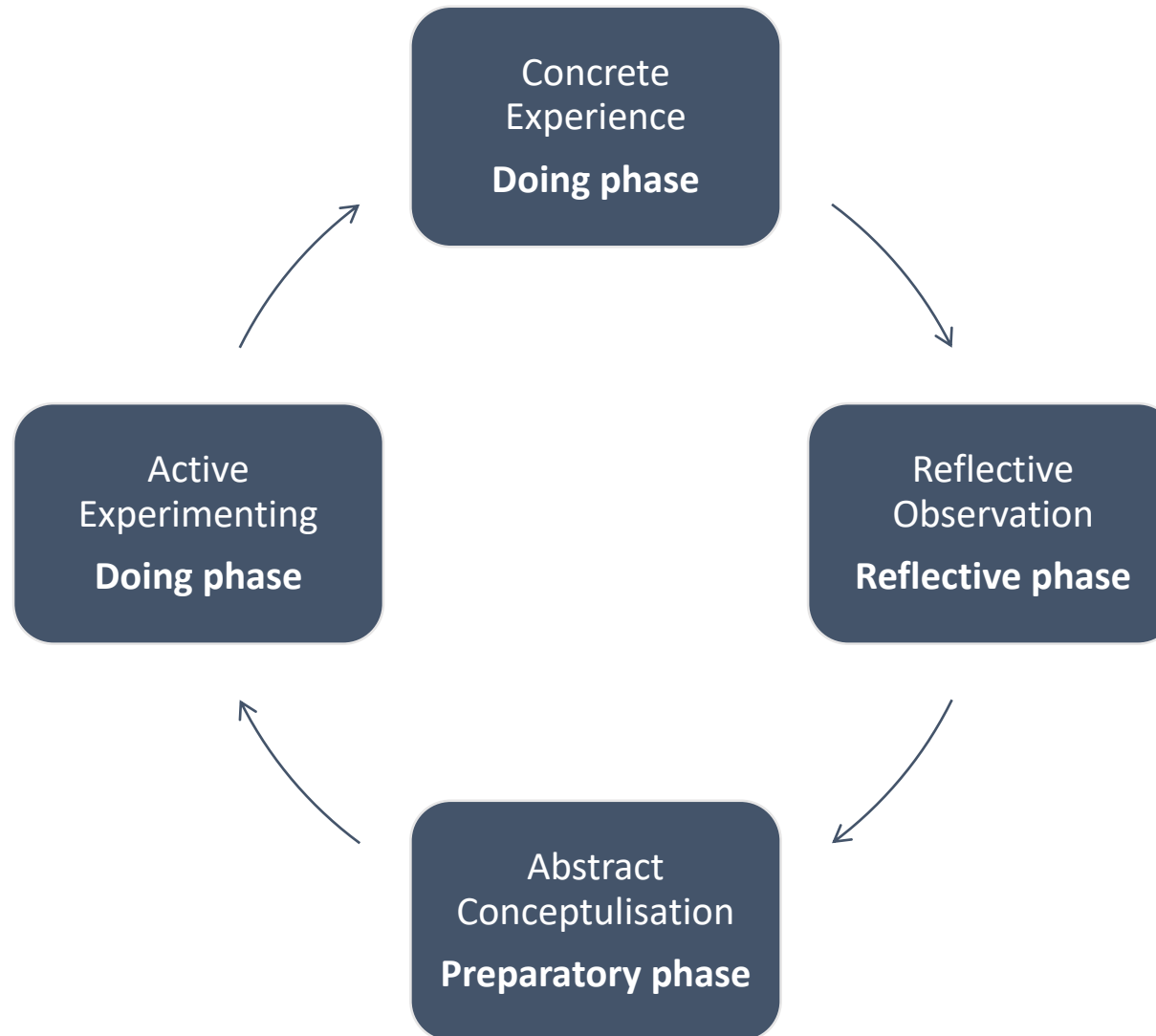
Context: The Importance of Field Teaching

- Fieldwork essential within biosciences teaching
(*e.g.* Cook *et al.*, 2006; Peasland *et al.*, 2019; QAA, 2019)
 - Scientific basis for study of organisms and ecosystems
 - Observation-based knowledge acquisition
 - Analytical research skills
 - Decision-making and team-work
 - Provides social interactions
 - Improves contentment, recruitment and retention (Boyle *et al.*, 2007)



Marine Biology Fieldwork in a virtual world

Context: The Importance of Field Teaching



Marine Biology Fieldwork in a virtual world

Context: Fieldwork and the Research-Teaching Nexus



EMPHASIS ON RESEARCH CONTENT



Research-informed
*Level 5 Marine
Practical Skills II*

Research-led
*Level 4 Marine
Practical Skills I*

Research-based
*Level 6 Marine
Research Project*

Research-oriented
*Level 5 Marine
Practical Skills II &
Marine Research and
Employability Skills*



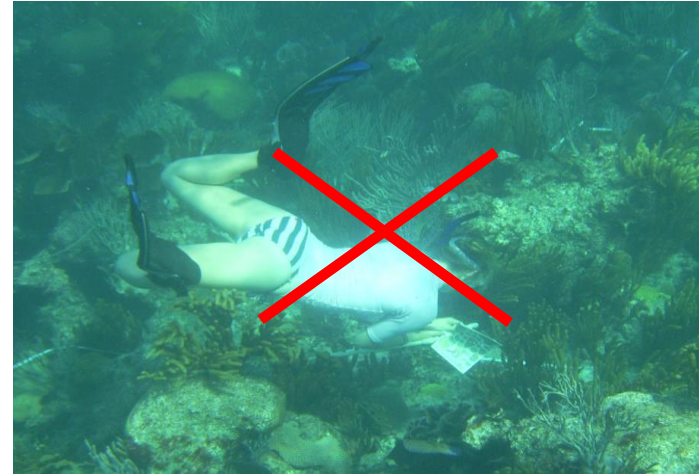
EMPHASIS ON RESEARCH PROCESSES AND PROBLEMS



Marine Biology Fieldwork in a virtual world

Context: The Problem

LOCKDOWN!



Marine Biology Fieldwork in a virtual world

Context: Solutions?

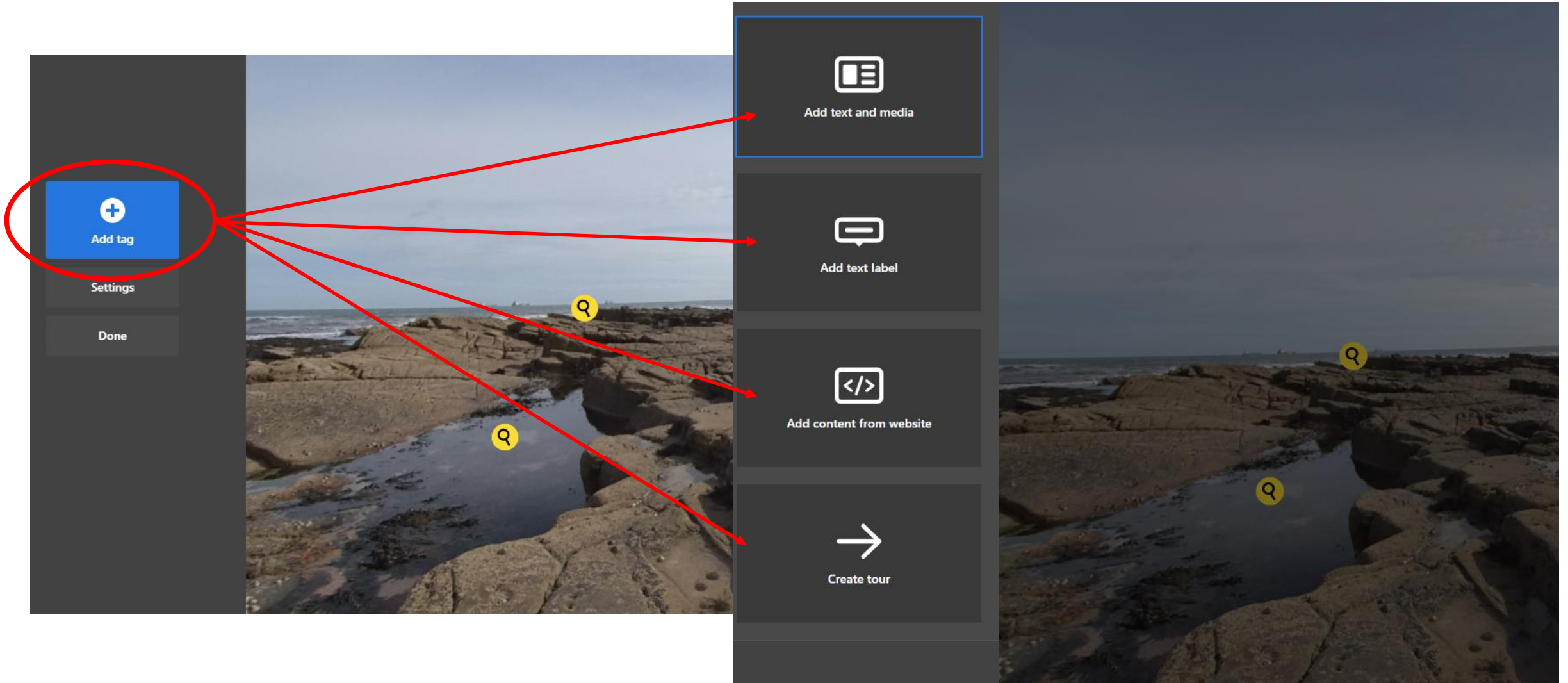
- Recently, virtual resources used to augment physical fieldwork
 - Observation, data-gathering and problem solving using computer-generated approaches
 - Limited practice in the biosciences (Shim *et al.*, 2003; Horodyskyj *et al.*, 2018)

Could we create a virtual environment where we could take students ‘out’ into the virtual field and how????



Marine Biology Fieldwork in a virtual world

Intervention: Methods



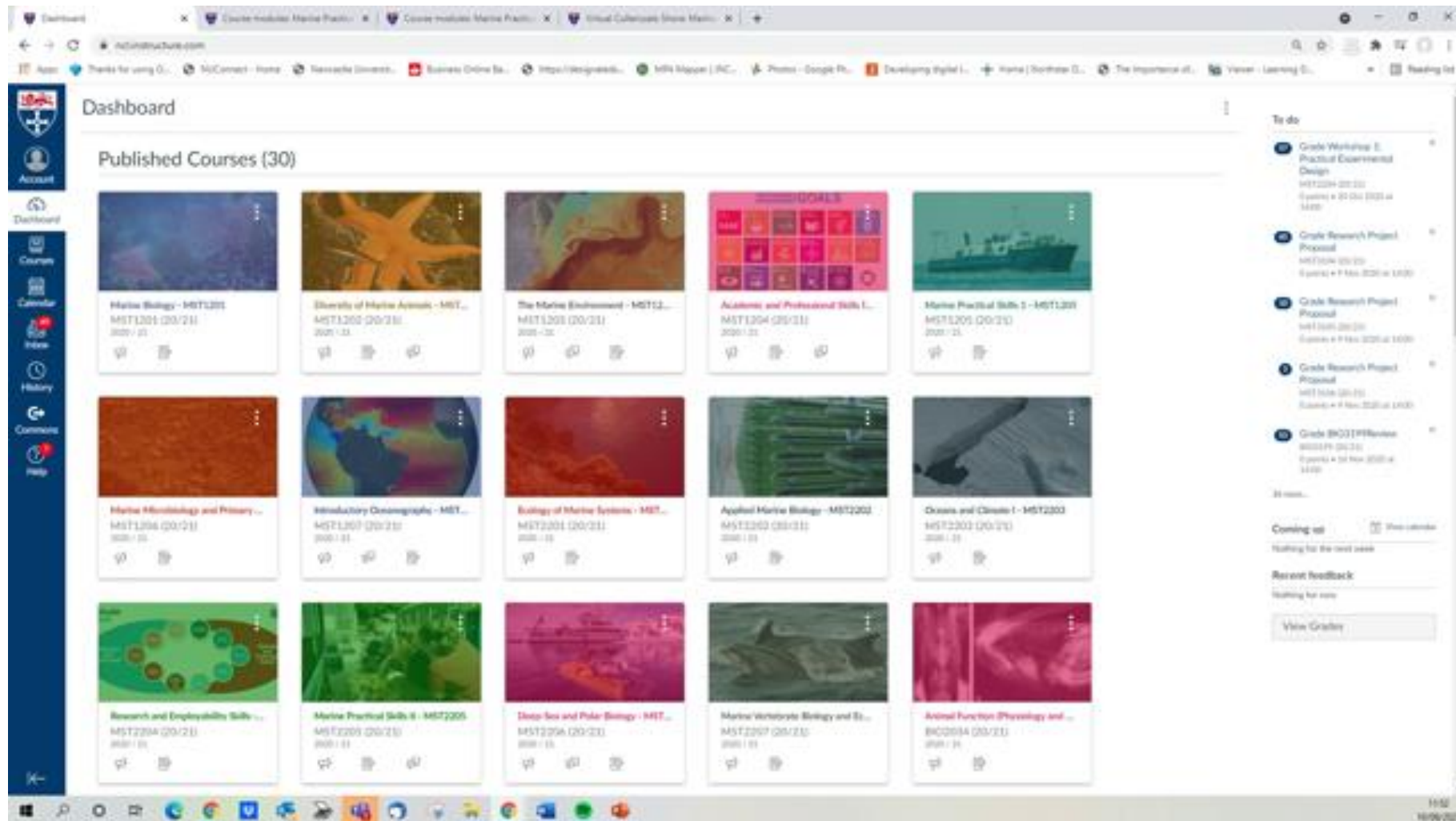
Marine Biology Fieldwork in a virtual world

Intervention: Methods



Marine Biology Fieldwork in a virtual world

Intervention: Delivery
Canvas Compatible



Marine Biology Fieldwork in a virtual world

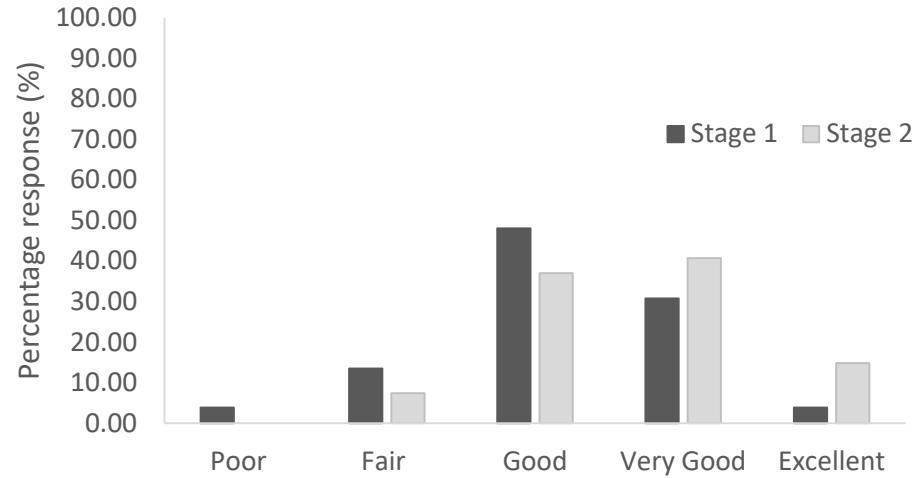


Figure 1: How useful did you find the synchronous fieldtrip?

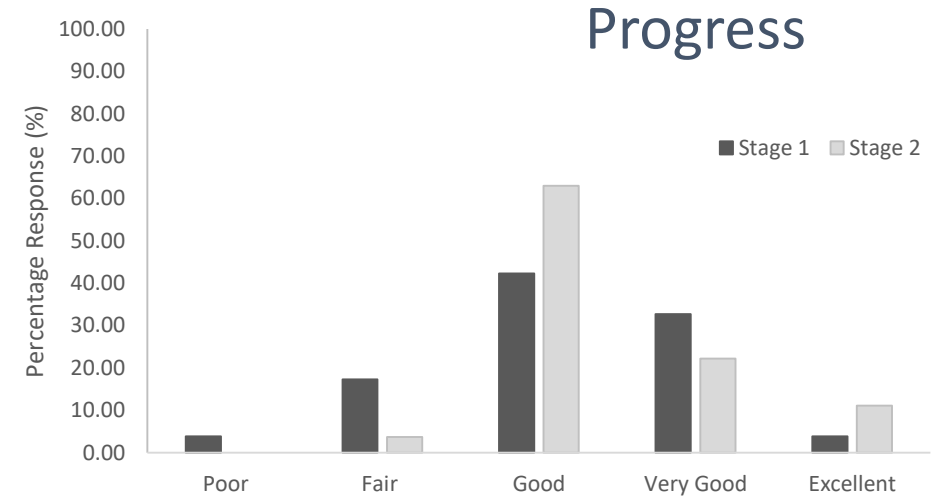


Figure 2: How much progress do you think you made taking part in the synchronous fieldwork?

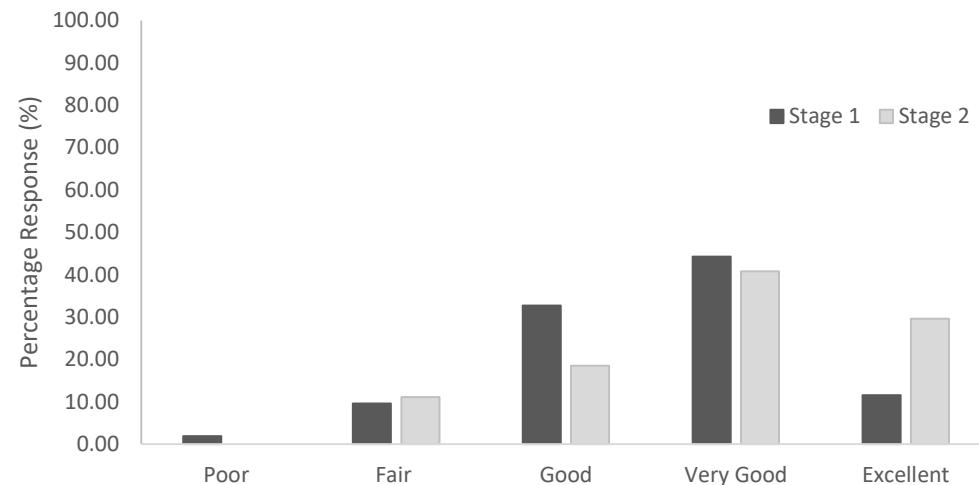


Figure 3: The virtual fieldtrip provided a good online replacement to present-in-person teaching on the rocky shore?

Marine Biology Fieldwork in a virtual world

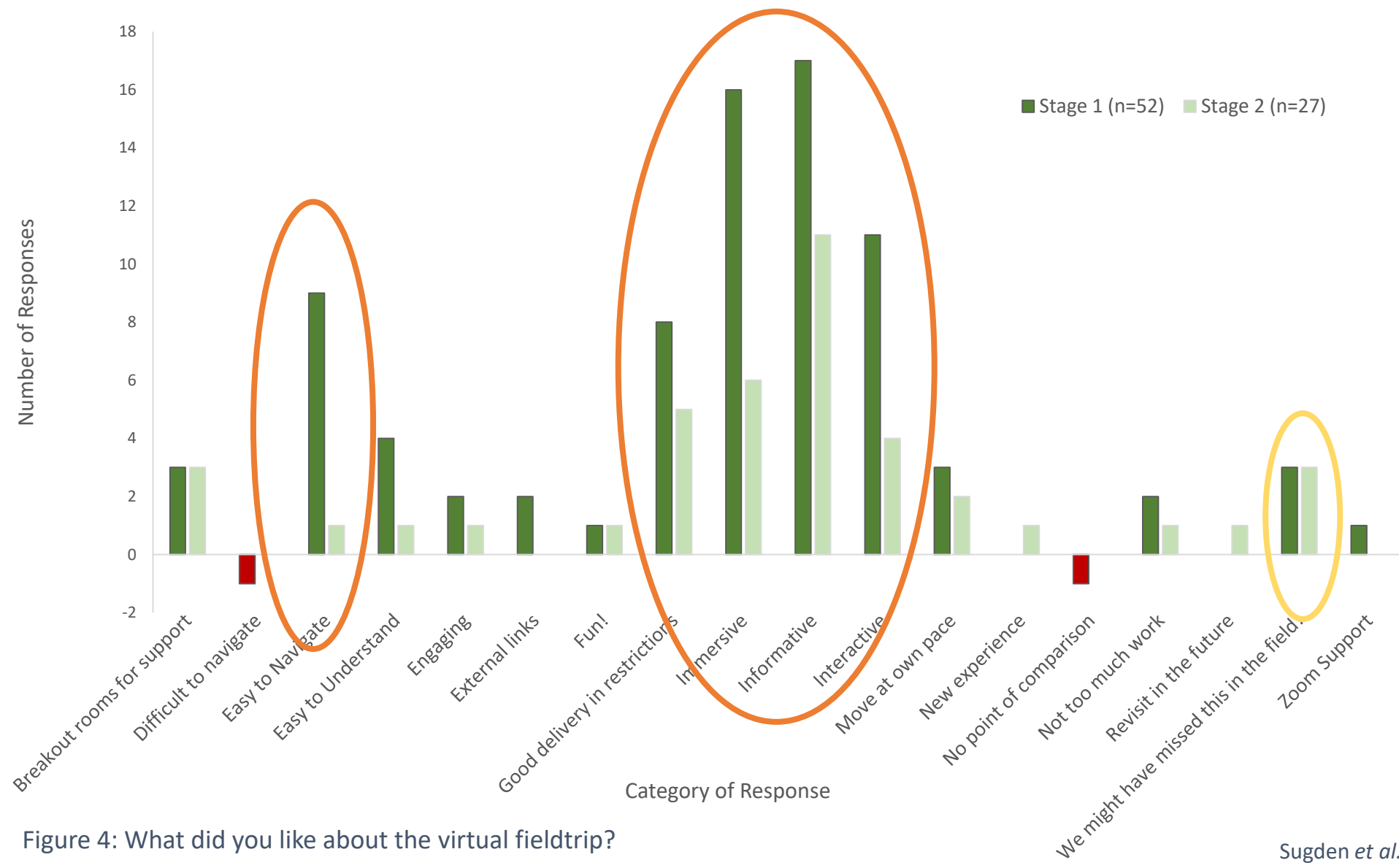


Figure 4: What did you like about the virtual fieldtrip?

Marine Biology Fieldwork in a virtual world

"I liked how [the sites] were all divided up because this makes them easier to break up and extract the relevant information from"

What did our students think?

"I found it so useful that more in depth photos were taken because they highlighted things that I would most likely have missed if I was on the shore"

"The [virtual] field trip was a very good alternative to the field trip considering the circumstances and thank you for taking the time to make it"

"It's the best alternative to an in-person field trip because at least we get a sense and understanding of what we should be doing"

Marine Biology Fieldwork in a virtual world



Marine Biology Fieldwork in a virtual world



Marine Biology Fieldwork in a virtual world

Knowledge: The Future



Blending VR and in-person teaching to enhance experience


Marine Biology Fieldwork in a virtual world


Knowledge: The Future



Thank you for listening

Questions?

Dr Heather Sugden
heather.sugden@ncl.ac.uk
 @hes_1

Dr Sara Marsham
sara.marsham@ncl.ac.uk
 @sara_marine

School of Natural and Environmental Sciences
 @SciencesNCL
 @newcastlemarine
 @NCLDoveMarine

Marine Biology Fieldwork in a virtual world

References

- Boyle *et al.* (2007). *Journal of Geography in Higher Education*, 31: 299–317.
- Cook *et al.* (2006). *Area*, 38: 413–20.
- Griffiths (2004). *Studies in Higher Education*, 29: 709-726.
- Healey (2005). *Journal of Geography in Higher Education*, 29: 183-201.
- Horodyskyj *et al.* (2018). *Astrobiology*, 18: 86-99.
- Peasland *et al.* (2019). *International Journal of Science Education*, 41: 2369-2388.
- QAA (2019). Benchmark statement for biosciences.
- Scott *et al.* (2012). *Journal of Science Education and Technology*, 21: 11–21.
- Smith (2004). *Journal of Biological Education*, 39: 6-11.
- Shim *et al.* (2003). *Journal of Biological Education*, 37: 71-74.