



XXVII FIG CONGRESS

11-15 SEPTEMBER 2022
Warsaw, Poland

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Developing Interactive Digital Learning Resources- A Case Study for MSc Surveying Modules (11427)

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Introduction

- UNESCO state that Higher Education Institutes (HEIs) were completely closed in 185 countries and affecting 89.4% of total enrolled learners, affecting more than 1.5 billion learners
- 2019/20 created emergency reactions for remote resources:
 - Video resources showing practical being undertaken
 - Recordings of briefings for the practical
- What about for 2020/21 and further forward?

Interactive Digital Learning

- People's average attention spans 10-20 minutes (Sousa,2011)
- First lapse of attention span in a lecture 30s, second 4.5 minutes (Brunce, Fens, & Neils, 2011)
- Median engagement time of videos 6 minutes (Guo, Kim, & Reuben, 2004)

Interactive Digital Learning

Range of content

Tasks-Collaboration

Tasks-Individual

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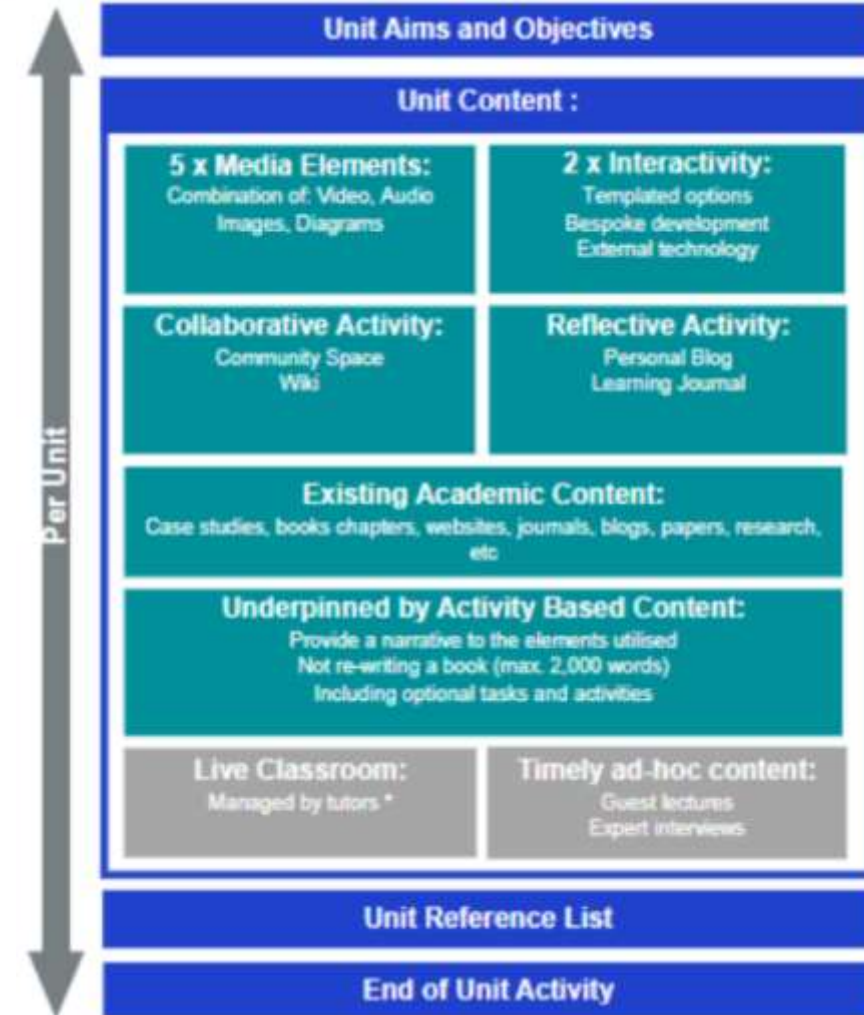
Short videos

Easily digestible text

Strong links to
assessment criteria

Interactive Digital Learning Model

- Trial based on 7BU507 Geomatic Monitoring and Asset Engineering
- Module split into 10 separate units
- Best Practice Content Guide
 - Media Elements
 - Interactive and Collaborative Material
 - Written Academic Content



In-House Expertise

- LD- Learning Designer
- LMP- Learning Media Producer
- OCP-Online Content Producer

Stages	Academic	LD	Peer Reviewer	LMP	OCP	Learning Developer	Proof	Project Co-ordinator
Planning	Planning	Reviewing the plan	Signing off the plan					Setting milestones
Authoring	Attending coaching meetings	Coaching						Checking progress
	Authoring	Reviewing authored content	Reviewing authored content	Advising on bespoke media elements	Reviewing authored content	Advising on bespoke interactive elements		
	Making changes	Checking changes						Liaising between different parties
	Making proof amends						Proofreading authored content	
Building	Reviewing the built content	Reviewing the built content		Creating bespoke media elements	Building the module	Building bespoke interactive elements		Checking project completion
Delivery preparation	Setting up for delivery							
	Updating future iterations	Reviewing updates			Making updates			Checking project completion

What Does It Look In Practice?

A Virtual Learning Environment with:

- Video Resources of practical content
 - Professional Production Crew
 - Engagement “Tricks”- e.g. tie changes
- Engagement Activities
 - Collaboration
 - Individual
- Traditional Written Content
- Asynchronous Lectures



Figure 3 Final Produce module content

Activity 4.1: Preparing a specification and scoping documents

This activity is designed to allow you to prepare a specification and scoping document for an existing embankment on a former railway line, the embankment is known to have suffered movement.

Figure 4.11: Crossbrook tunnel approach



Image source: University of Derby (2022)

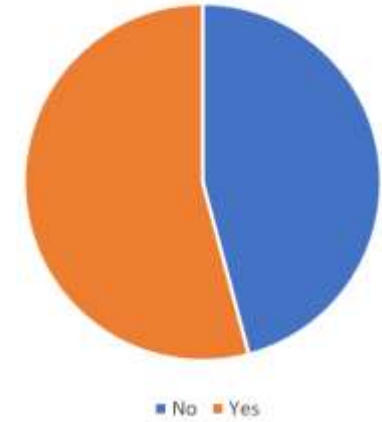
Background information

The site is located on the Marsall Trail in North Derbyshire. The former rail line is closed and now operates as a cycle/footway, which can carry maintenance

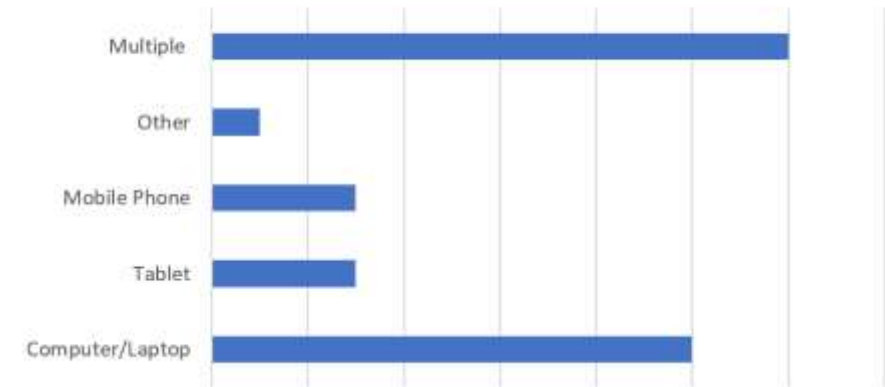
Challenges of Design and Implementation

- Engagement of Students
- Connectivity Issues
- Access to Devices
- Multiple Platform Inter-Compatibility

Did you use the remote resources provided?



Which Viewing Platform did you use to view the content?



Was is Successful?

- Most students would use in the future
- Helped students with support plans
- Positive feedback from the system of those who used it
- Increased customisation of learning experiences

Would you use the blended resources in the future?



Next Steps?

- Resources into the field and low connectivity area
- Further interactivity through the use of web/app based systems
- Increased inter-compatibility on different devices types
- Exploration of further lecture/practical supporting material, e.g. VR/AR?





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Thank You and Questions?

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References

- Bunce, M., Flens, E., Neils, J. 2010. How Long Can Students Pay Attention in Class? A Study of Student Attention Decline Using Clickers. *Journal of Chemical Education*. 87(12), pp1438–1443.
- Guo, P.J., Kim, J., and Rubin, R. 2014. How video production affects student engagement: An empirical study of MOOC videos. In: *ACM Conference on Learning at Scale*, 4–5 March 2014, Atlanta, Georgia, USA. pp. 41–50 Found at <http://groups.csail.mit.edu/uid/other-pubs/las2014-pguo-engagement.pdf>.