11 What I did on my holidays: digital fieldtrips and digital literacies

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Abstract

If a picture says a thousand words, how much can a 360° image say? How can experiencing (or understanding) other languages and cultures be conveyed in immersive experiences? The Digital Learning Team at the University of Southampton has been developing innovative resources whilst piloting the use of Thinglink, a subscription- and browser-based software which allows educators and students to create interactive 360° tours embedded with rich media tags and online forms. As mentioned in Fielding and Peel (2017), "[u]sually it takes months of training to develop a virtual world but Thinglink allows this to be done in a short space of time by users with no previous experience" (n.p.). Students could develop digital literacies and skills by creating immersive narratives of their experiences beyond the university environment. In exploring one easy to apply production process, we are at an early stage of innovative practice which has applications for many disciplines. This report outlines aspects of our production process and gives top tips for designing for 360° resources.

Keywords: immersive, digital, 360°, virtual.

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1. Introduction

Mixed reality, including virtual and augmented realities, is identified in the 2018 New Media Consortium New Horizon report (Becker et al., 2018) as having a "time to adoption" timeframe of four to five years (p. 46). The field is evolving rapidly, with technology for capture, creation, and deployment becoming more affordable, efficient, and effective. Virtual platforms allow individuals to explore environments and discover and investigate at their own pace (Cameron et al., 2005). The body of literature is also developing rapidly with growing evidence that immersive experiences confer various benefits to learning. These include increased engagement (de Freitas et al., 2010), a sense of telepresence in otherwise rarely or inaccessible environments (Schultze, 2014), and enhanced recall of environmental context-dependant memories (Jahn et al., 2018).

Although mixed reality technology is becoming more mainstream and accessible, it is still underused in the majority of higher education teaching. More familiar to faculty staff and students are 360° immersive experiences, accessed via platforms such as Google Earth, StreetView, and bespoke virtual campus tours. These are usually passively consumed, or outsourced to external providers with the necessary skills and software to produce. However, Thinglink (a browser-based subscription model software) is a tool which allows educators and students alike to create interactive 360° tours embedded with rich media tags and online forms.

2. Production process

Whilst the platforms which can host the resource vary in terms of functionality and user experience, the production process is less variable: 360° image capture, embedded media capture, asset list/storyboard, and uploading into editing software.

2.1. Storyboarding and image creation

A storyboard (either a Word or Excel file) is part of the planning process and an important part of recording copyright permissions. It should contain links to

any embedded materials published elsewhere online, images used to indicate hotspots and for more detailed notes of bespoke materials created for the resource, such as contributors, release forms, etc.

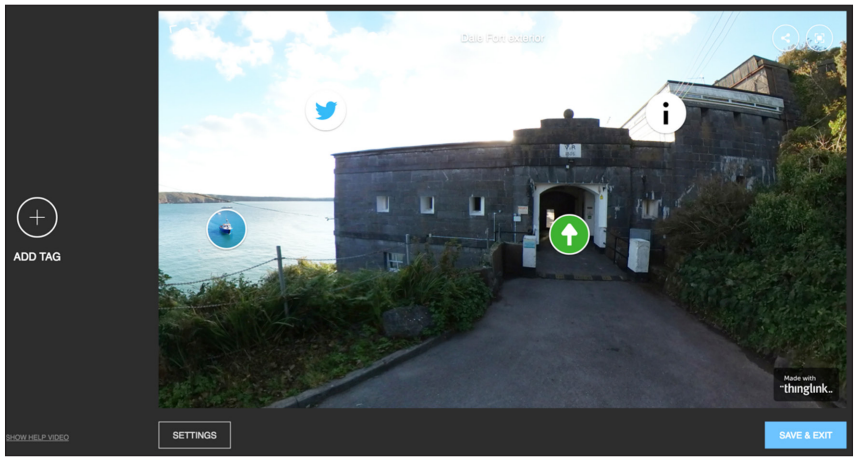
360° image capture is possible using multiple-lens cameras, or by using iOS or Android apps (although these will sometimes require post-production editing). The positioning of the camera has a significant impact on the user's experience; it should be located in a natural position of a person, at an appropriate average human height, and carefully aligned so that the 'seams' of the lenses do not cut across faces or features of interest in the environment. Logos and creation credits can be used in post-production to disguise unwanted elements of the image. A further option in Thinglink is to clone images that have been uploaded by other users, but are not explicitly licensed under Creative Commons.

2.2. Embedded rich media tags

Embedded media in Thinglink can include, but is not limited to; audio recordings, videos, images, online forms or surveys, and other websites. Whilst the learner has greater personal agency in exploring a 360° image, they can also benefit from some general guidance in using the resource. An introductory hotspot, identified with a 'start here' icon, describes what is available in the resource and any learning outcomes, and is a useful anchor. The nature of the hotspots contributes to the richness of the environment; a resource in which the user passively consumes content is less engaging than the opportunity to demonstrate new knowledge via virtual whiteboards, forms, and social media hashtags.

Embedding some form of providing feedback on the resource (such as a poll, form, or survey) will enable future improvements. When designing a tour that includes multiple locations linked together, use transition icons and labels consistently so that learners don't become disoriented. For example, all transition icons in a resource are green circles with a white directional arrow, and labels read 'Go back to X' (Figure 1). Large tours can quickly become tiresome to navigate through, so it is useful to add a 'Teleport' icon which will transition the user back to the home, or starting, image.

Figure 1. The Thinglink editing interface



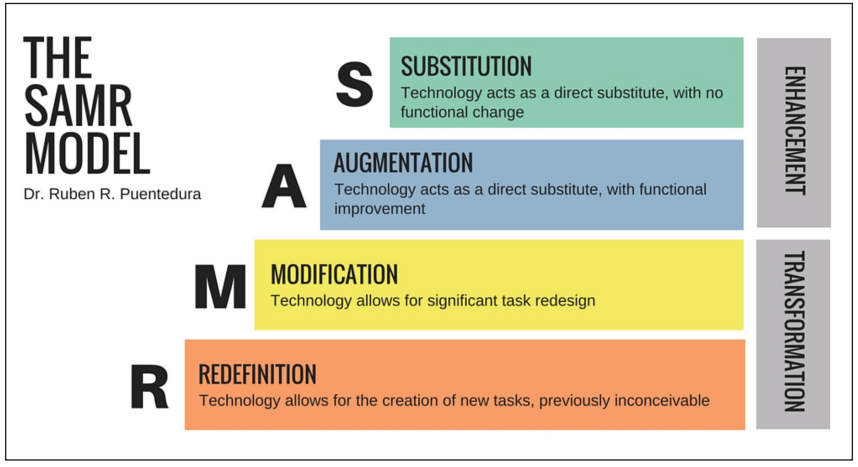
3. Pedagogical benefits of 360° resources

The pedagogical benefits of this new medium (360° experiences, not limited to Thinglink) in higher education are relatively unexplored. Initial studies such as Walshe, Driver, Jakes, and Winstanley (2019) indicate improved personal reflection and more nuanced understanding of decision making and *in situ* responses for trainee teachers. In the same summary, Walshe et al. (2019) note the importance of "spatial situatedness, as students feel as though they are physically in the classroom when engaging with the 360°-degree experiences" (n.p.). The embodied feeling of 'being there' (Heidegger, 1962) adds to the authenticity of the experience and allows for deeper learning.

Going beyond functional information technology skills, the digital capability of an individual encompasses media literacies, communication, problem solving, and even wellbeing in online environments (JISC, n.d.). There are numerous applications for this type of context-based, situational learning resource in higher education:

- making previously inaccessible (or rarely accessible) environments available, such as clinical settings with patients;
- annotations to increase vocabulary;
- year abroad pre-activities to get to know Erasmus partner university towns/environment;
- specific scenes could contribute to the development of language for specific purposes;
- provide rich personal narratives from a learner perspective to reduce sense of isolation in new cohorts; and
- reducing anxiety levels in some students by aligning expectations of upcoming learning experiences, such as placements or assessments.

Figure 2. The SAMR model[2]



2. By Lefflerd, CC BY-SA 4.0: https://commons.wikimedia.org/w/index.php?curid=47961924

Educators can develop the digital capabilities of their students by designing activities in which learners use Thinglink to create their own interactive virtual tours. This type of task could simultaneously improve lower levels of Bloom's (1956) taxonomy, such as recall by providing more engaging knowledge checks or quizzes, whilst allowing students to develop upper level skills such as creating new resources. In combination with Bloom's (1956) taxonomy and the Substitution, Augmentation, Modification, and Redefinition (SAMR) model for the use of technology in education (Puentedura, 2013) shown in Figure 2 above, Thinglink has the potential for students to achieve much deeper learning through the process of creating their own resources.

4. Conclusion and future work

The use of immersive media will become more commonplace in higher education settings (Becker et al., 2018). Reduced costs and improved tools mean that staff and students are more enabled to create their own resources. This in turn can make placements more inclusive, provide opportunities for novel revision material and assessment, and further democratise access and learning.

The Digital Learning Team will continue to pilot the use of Thinglink as well as other tools for developing immersive learning experiences created for, and with, students. Phase one feedback is expected in the current academic year for pilot resources, and phase two includes co-creation of resources with students in various disciplines.

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