

Title of article:

Virtual field trip platform for online teaching-learning enhancement: Yim Tin Tsai island as a site of tourism education

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Abstract

The COVID-19 pandemic has caused suspension of in-class lecturing and outdoor field trips. This issue largely affects the teaching-learning process of many tourism-related courses, which require field experience to enhance learning and development of students. To cope with such need for off-site field investigation, an interactive and sustainable virtual field trip platform is necessary for transforming the crisis of teaching-learning into an innovative opportunity for tourism education. This project takes Yin Tin Tsai (YTT) in Sai Kung, Hong Kong as its site for a Virtual Reality (VR) and Augmented Reality (AR) interactive field trip platform. YTT has three different thematic features (the Catholic religion, Hakka culture and ecology) for resource revitalization and destination development. The platform allows students to conduct virtual trips to YTT through innovative features such as VR-based self-paced tours, attraction selection, e-learning of questions-and-answers, user-friendly sharing of visitor experience, and more importantly, a set of AR-driven features about the main attractions and history of YTT. This project is of high relevance to teaching-learning enhancement and will be constructive when the platform is utilized across UGC-funded tourism, geography, resource management and general education courses. The project integrates field trips, location-based study and VR/AR applications. Teachers are both lecturers to deliver knowledge and facilitators of interactive class or online discussions without any geographical, weather or resource constraints.

Keywords: *Augmented Reality (AR); e-Learning; Hong Kong; online field trip; tourism education in pandemic; Virtual Reality (VR)*

Introduction: Online Teaching and e-Learning in Tourism Education in the Pandemic Crisis

During the COVID-19 pandemic, human mobility has been severely restricted worldwide (Fang, Wang & Yang, 2020; Yang, Zhang, & Chen, 2020). Such mobility limitation has also been extended to education sector, which particularly influences subjects such as geography and tourism that often require practicums and field work experience to enrich the knowledge of the students (UNESCO, 2020). Due to the impact of the COVID-19 pandemic, many in-class face-to-face lecturing had to shift to online teaching, and most of the planned field trips were also cancelled (UNESCO, 2020). Online education therefore immediately becomes a significant trend for most of the institutions given an ongoing e-Learning development over the recent years (Davis & Singh, 2015; Jong, 2014). Many tourism educators have included outdoor fieldwork and field trips to enhance the learning experience (Jong, 2014; Leydon & Turner, 2013). The pandemic crisis thus provides an unexpected opportunity for both instructors and students to transform their educational norms and practices to break the physical constraints (Johnson & Aragon, 2003; Sigala, 2002, 2004; UNESCO, 2020; Yan, 2020).

Most field experiences were lost during the pandemic period, but instructors had also attempted to move at least a small part of the field trips to a combined mode of video, virtual and self-paced arrangements. Such combination of real-world and virtual experience was not uncommon in both tourism industry and destination management (Davis & Singh, 2015; Webster, 2016), and e-Learning (Azeiteiro et al., 2015; Huang, 2000; 2002; Schott, 2017; Weibel, Stricker & Wissmath, 2012).

Although online teaching or e-Learning might not satisfy the expectations of tourism practitioners and students (Cini, van der Merwe, & Saayman, 2015), the teaching mechanism must be changed and transformed to online platforms in such difficult time. Nevertheless, opportunities beyond classroom teaching could exist from the crisis because tourism education would often involve a great variety of both knowledge transfer and practical skill training. E-learning could be viewed and implemented to incorporate various teaching-learning activities that should not be constrained by time, resources, geographical settings and locations since tourism courses could cover a wide range of topics related to urban, cultural and heritage, community-based and nature-based topics and experiences (Kelner & Sanders, 2009; Ting & Cheng, 2017).

Online education could break the geographical limitations with the combination of multiple teaching-learning approaches, such as virtual reality (VR) (Crampton, 1999; Schott, 2017; Weibel et al., 2012), augmented reality (AR) (Dunleavy, Dede, & Mitchell, 2009), game-based learning and e-Learning modules to attain far-reaching advantages and benefits teaching-learning experience

enhancement (Azeiteiro et al., 2015; Cantoni, Kalbaska & Inversini, 2009; Mavridis, Katmada & Tsiatsos, 2017). The resultant instrument or platform can be more innovative and sustainable (Deale, 2015; Hales & Jennings, 2017).

A Virtual Field Trip Platform: Yim Tin Tsai (YTT) island in Hong Kong as a Site of Experience

Under the aforesaid academic background that calls for the special need for off-site field investigation, the aim of this project is to create an interactive and sustainable platform for virtual field experience and e-Learning. The project transforms the pandemic crisis to an opportunity for innovative tourism education. This paper introduces this virtual platform and its VR and AR functions to incorporate with online teaching-learning process. This virtual platform contains two key features, firstly, the VR tour covering various spots on the island, and secondly, an AR tool that presents some selected features and stories of the island. The combination of these two functions allow students to conduct self-paced site visit during our online teaching or at home.

YTT island is located in the eastern part of Hong Kong. It takes about 15 to 20 mins to reach the island by kaito, a small ferry, from the Sai Kung Public Pier. The YTT village has a history of over 300 years. The island and the village is unique in Hong Kong because it is the only place combining three different themes together, including Catholicism, Hakka culture and some nature-based or ecological resources. This village is the only place in Hong Kong that has such religious-cultural-natural integration (Su, 2018; Yau, 2016).

VR function – self-paced or coordinated virtual field experience

The VR platform contains a total of over 40 spots filmed on the island. These spots are visualized in 3D-images. Students can either choose to use web-based platform to see a 2D version. If the students have a pair of 3D-glasses or a VR device, you can install a designated mobile application on a smartphone and visualize everything in an immersive environment. The users can choose to follow the designed route of visit on the island, seeing different spots and attractions one-by-one. Alternatively, the students may click on the location map icon or scan through the images at the bottom part of the platform to choose a particular spot for a view, e.g., the salt pan area (Figure 1a). The spots include both outdoor environments and some indoor places such as the Heritage Centre or the popular St. Joseph's Chapel. In some locations, there are questions added for open discussion during online teaching or self-reflection by the students themselves (Figure 1b).



Figure 1a: VR of YTT – the salt plan area



Figure 1b: Pop-up question for discussion

AR function – highlights of special and unique features of the YTT island

An AR booklet in PDF format is created. Students can install a mobile application, and then scan the image on each page of the booklet (Figure 2a). Then, more information about a particular feature or theme will be provided. For instance, an online video about the past stories of the village lives (Figure 2b). We are now creating a 3D images for the chapel as well as the saltpan.



Figure 2a: The AR booklet



Figure 2b: Online video as part of the AR function

Discussion and Conclusion: Turning a Pandemic Crisis to Teaching-Learning Enhancement

This virtual field trip platform will be used not only in tourism education, but in different courses in geography, resource management, cultural studies, general education or other social science subjects. The platform introduced in this paper sets a good example of combining VR, AR functions with e-Learning. The role of instructors or teachers is important to facilitate students to use the platform wisely and interactively without any geographical, weather or resource constraints. It is a perfect time of provision in this pandemic period (UNESCO, 2020) although some fundamental advantages of face-to-face or in-class interactions are still irreplaceable (Ali & Ahmad, 2011; Bolliger, 2004). Student satisfaction is determined by more diversified factors (Dennen, Aubteen Darabi & Smith, 2007; Yukselturk & Yildirim, 2008), which may give a way for e-Learning and online teaching tools to initiate an educational breakthrough.

It is essential to let instructors to understand the changing pedagogy that online education is shifting from teaching-centred to learner-centred, which means focusing on student participation is more important than course content (Maumbe, 2014). The VR and AR functions are established not only to cope with the unavailability of face-to-face teaching and onsite field experience, but to allow instructors to learn to adapt to an progressive trend of e-Learning in the educational contents in tourism courses to prepare students for the ever-changing industry (Inui, Wheeler & Lankford, 2006; Zehrer & Mössenlechner, 2008).

Go beyond the shift of teaching-learning mode to education innovation

Tourism education covers many topical areas, such as tourism planning and management, tourism policy, sustainable tourism development and various forms of tourism products and themes, is advocated to utilize e-Learning approach and turn to online mode since these areas usually involve wider global consciousness and understanding of environmental and cultural diversity (Azeiteiro et al., 2015; Deale, 2015; Hales & Jennings, 2017; Jong, 2014).

Online education in tourism study allows students to benefit from knowledge acquisition (e.g. learning of fundamental concepts, underlying theories and applying models) (Kollmuss & Agyeman, 2002; Webster, 2016), attitudinal and perceptual changes (e.g. discussions about controversial topics and issues in tourist destinations) (Fatima, Khan & Goh, 2016; Mobley, Vagias & DeWard, 2010), as well as usability consideration (e.g. stimulation of learning and response interest, and simulation of real-world situations) (Chiao, Chen, & Huang, 2018; Fotiadis & Sigala, 2015). However, there is still much room for empirical evidence on how online education and e-Learning platform may support and improve the effectiveness and experience in teaching-learning process in tourism education (Mavridis et al., 2017). Further research can be conducted to understand the gap between instructors and students in face-to-face lecturing and online teaching (Semley, Huang & Dalton, 2016).

Under the “new” model of education, educators and students are expecting that similar online platforms and virtual experiences are necessary to enhance the teaching-learning process in tourism education. When “study from home” is becoming unavoidable in a world of uncertainty and fast-changing socio-political circumstances, more of such virtual and online platforms are regarded as sustainable to be applied across disciplines, courses and over a long period of teaching time (Hales & Jennings, 2017).

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