

Citation: Schott, C. 'Knowing about Nature and Human Impacts – a pedagogical tool for the challenges of the Anthropocene' in O. Kugapi and M. Aijala (Eds.) Proceedings of the Tenth TEFI Conference (TEFI10) 'Knowing with Nature – The Future of Tourism Education in the Anthropocene'. Pyhatunturi, Finland (3-6 June 2018): Tourism Education Futures Initiative (32-34).

Knowing about nature and human impacts – a pedagogical tool for the challenges of the anthropocene

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Introduction

While the academic literature is bursting with evidence of profoundly negative human impacts on the natural environment there is a lack of research literature on effective pedagogies that seek to mitigate negative human impacts. As our students are both the tourism leaders as well as citizens of the future we need to devote more scholarship to the development and assessment of meaningful learning about these challenges; and their direct and indirect implications. Because many of the human impacts and implications are not readily 'visible' to students living relatively comfortable lives in urban environments of developed countries, the pedagogical philosophies of experiential education (Dewey, 1938) and situated learning (Lave, 1988) hold great promise in this context. While real fieldtrips to pertinent case study sites would be the ideal option for learning about negative human impacts, such fieldtrips would make considerable contributions to some of the issues under study; including climate change (Schott, 2017). At the same time, ever more sophisticated technology is available for educators to facilitate meaningful and impactful learning about human impacts and their direct and indirect implications. From a tourism perspective virtual reality offers great potential in allowing students to virtually visit a pertinent case study site where they can visualise, engage with, unpack and ultimately learn about these issues, their causes and consequences. This paper shares research findings from a project examining student feedback to a pedagogical tool using virtual reality technology to facilitate situated experiential learning about climate change and other sustainability challenges on a Pacific island.

Literature Review

Educationalists, including John Dewey and Kurt Lewin, have long promoted the benefits of experiential forms of learning, which include increased engagement of students (Hanson & Moser, 2003), enhancement of subject knowledge and career decision-making (Chickering & Gamson, 1987; Cantor, 1997), and lifelong learning (Grabinger & Dunlap, 1995). Experiential education is defined as *“a holistic philosophy, where carefully chosen experiences supported by reflection, critical analysis, and synthesis, are structured to require the learner to take initiative, make decisions, and be accountable for the results, through actively posing questions, investigating, experimenting, being curious, solving problems, assuming responsibility, being creative, constructing meaning, and integrating previously developed knowledge”* (Itin, 1996:6).

Situated learning (Lave, 1988) or situated cognition (Brown, Collins, & Duguid, 1989) is a pedagogy that is closely aligned to experiential education, but positions the learning process in the ‘real world’. Situated experiential learning then offers great promise for meaningful learning about sustainability-related issues. With the rapid rise of virtual reality hardware and software new and exciting opportunities have become available to provide virtual situated experiential education. Unfortunately the literature on immersive experiences, and VR more specifically, is still emerging and slender as a result. Nevertheless, technology-mediated immersive experiences in tourism have been recognised to provide rich information supporting a range of cognitive, affect and skill outcomes for learners (Neuhofer, Buhalis, & Ladkin, 2014). Much of educational research examining advanced immersion through VR is from medical studies (Aïm, Lonjon, Hannouche, & Nizard, 2015), public health (Ma, Jain, & Anderson, 2014), or Biology (Lee & Wong, 2014), with little engagement from tourism educators. Preliminary research suggests that VR appears to be effective in supporting decision-making and interaction as well as experiential learning (Loke, 2015), thus supporting the need for closer investigation of situated experiential learning for a topic as important as human impacts and sustainability.

Methods

In order to gauge the teaching innovation’s impact on students learning about sustainability an in-class questionnaire survey was conducted in the last weeks of the course in which VR was used to foster situated experiential learning about sustainability in a Fijian island. The self-

complete survey was administered by a Research Assistant with no teaching or marking role in the course. It was distributed at the beginning of a regular course lecture and took approximately 10 minutes to complete.

Findings

The findings from the survey indicate a very positive response from the students who had used the technology. In terms of general educational impacts, enjoyment of learning, followed by motivation to learn was rated very highly, both of which are arguably important facilitators of learning about any topic (Wlodkowski, 2011). The presentation will expand on the teaching tool's impact on student learning as well as on differences in response between the monitor-based and the VR headset version.

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