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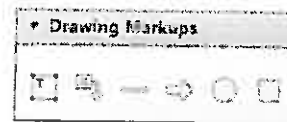
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# Virtual cultural tourism: Six pillars of VCT using co-creation, value exchange and exchange value

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## Abstract

This paper examines antecedents to the successful use of Virtual Cultural Tourism and the ways in which virtual realities can add value to Cultural Tourism offers. Success can be seen to derive from the deeper understanding of consumers' preferences and motivations to engage with Virtual Cultural Tourism. It is also necessary to see these initiatives from the perspective of multiple stakeholders: the armchair traveller, the frequent flyer and the service provider at destinations. The latter include public sector providers such as park site managers, museum curators, interpretation and information services for tourism as well as the private sector developers.

## Keywords

Virtual, cultural, tourism, experience, affiliation, stakeholders

## 2 Introduction

Culture has always involved the virtual representations of our social lives. It uses and develops myth, metaphor and the iconic. Creating these historic forms of culture utilised the technology of their times, creating expressions of meaning and value through the shifts from stone tablets to papyrus to paper, from hieroglyphs to different schools of art. The folk traditions even survived Bob Dylan's introduction of electricity into the performances of folk tales. With the advances in ICT, we can realise cultures and cultural tourism in virtual reality (Aitchison et al., 2014; Kabassi, 2013; Komianos et al., 2015; Stangl et al., 2012). This paper explores how virtual cultural tourism offers have developed in various aspects of the tourism industry, with direct reference to the re-presentation of cultural and heritage tourism. In order to elaborate the contributions of virtual technology, it is possible to consider the added value of VCT throughout the experience flow of cultural and heritage tourism engagements as they feature in both the staging and engaging dimensions of

the construction of those experiences (see for example, mediating experiences in Scarles and Lester, 2014). Our lenses are created through the experience economy models (Pine and Gilmore, 1999); the co-creation epistemological approach (Park and Vargo, 2012; Prebensen et al., 2013); and the co-production approach (Shaw et al., 2011) that determines the triple bottom line of economic, social and environmental supply and distribution (Figure 1).

## Culture: Experience exchange

This model explores VCT through the functional and thematic contributions made by virtual technologies but also views these issues from a co-creationist perspective (Clarke, 2011; Melis et al., 2015). Our framework and this model of value experience emerge from

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the identification of a common thread in the explorations of experience creation are informed by a shared theoretical perspective. This experience model goes back to Pine and Gilmore (1999) where the terms are used consistently. Pine and Gilmore (1999: 6) identified the central roles of the customer in experience creation and, we are reminded, the emphasis was placed on the importance of the customer in experience and experience creation as they point out that 'Experiences occur whenever a company intentionally uses services as the stage and goods as props to engage the individual' (Pine and Gilmore, 11). By this they

mean that an experience occurs whenever companies intentionally construct it to engage customers. The engagement of the customer in the experience also means that customers rarely have the same experience, even though it is the same experience they are experiencing.

As Sundbo and Darmer (2008) correctly observe, this is because the individual experience is constructed through the interplay of the companies and the customers and therefore will be constructed differently by the different customers as they recognised that:

The engagement of the customer in the experience also means that customers rarely have the same experience, even though it is the same experience they are experiencing. The reasoning behind this is that the experience of the customer derives from the customer's personal interaction with the experience, as she or he is engaged in it, and all customers engage differently, depending on their background, emotions, interpretations and associations. (Darmer and Sundbo, 2008: 6)

The challenge for the development of virtual tourism is to build this model of experience into the virtual (Figure 2).

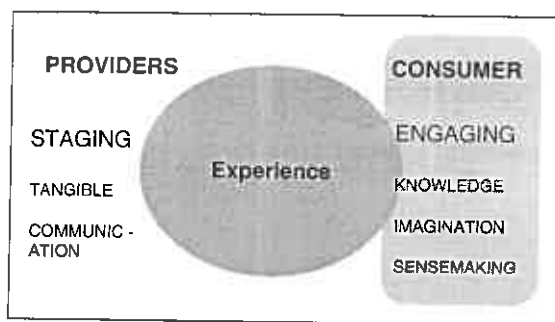


Figure 1. The experience flow.

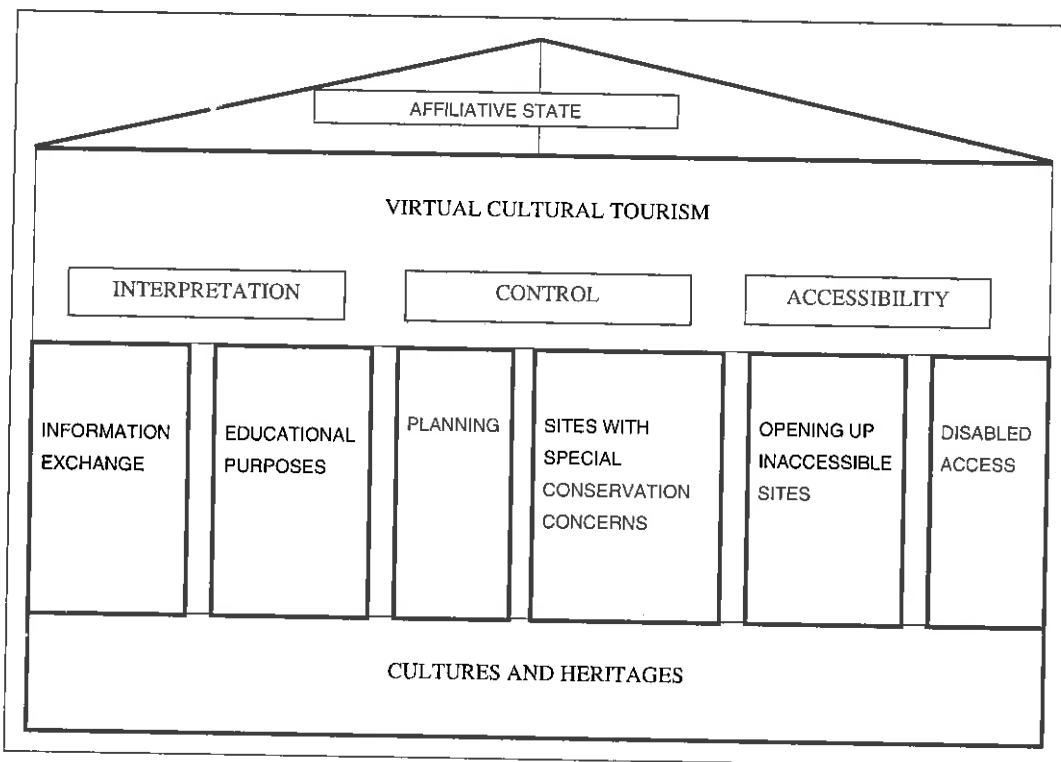


Figure 2. The six pillars model.

We have structured the account presented in the narrative in terms of a model highlighting the six pillars that support the development of tourism and apply in the field of cultural and heritage tourism. These can be seen in the case study of Derby, UK.

### *Case study 1: Derby City Cathedral Quarter*

In Derby City, we can address a wide range of diverse clients' needs. Traditional worship at the Cathedral is enhanced as new cadres of visitors grasp old knowledge about the origins of the City; its vital role as a centre of intellectual development during the eighteenth century's Industrial Revolution and its proximity to the natural resources such as water and coal which fed the rapid growth of industry and the rise of the new gentry in the hinterland. Derby's Georgian architecture, its purpose-built silk mill and porcelain factory reflect the city's rise to prominence at the start of the Industrial Revolution. Today's visitors can be virtual; they can upload a video and audio tour by day or night. A City which prides itself on proximity to resources, raw energy and highly specialised skills for industry and manufacturing can build on experience from the past as it continues to build a future with an emphasis on retail, a varied heritage, key actors' personal development through its museums, galleries, architecture and the city-scape. This City, with its focus on compactness, centrality and technology can again communicate a relevant message to consumers. Through partnerships within the UK and internationally, Derby displays an individually contextualised series of sporting and cultural activities such as annual Derby Feste staged in October of each year. The Cathedral Quarter showcases diverse and unique activities like Peregrine Falcons nesting on the ledges of the mighty tower of the Cathedral in Derby and a high-quality performing arts centre at Deda and the Quad. Ironically and somewhat unusually the Cathedral itself is not featured, yet it is the very existence of the Cathedral that gives this VCT its name. There are several hotels in the Quarter; one is named after the Quarter and the other is a modern building and part of a mid-range chain. Derby's virtual Cathedral Quarter experience is a bold effort to relate the values, brand and identity of a mid-sized English city to a wider audience of potential talented immigrants, new learners and business partners through the VCT portal. Such partnerships embody accessibility, affiliation to shared values and exchange of information to enable learning and co-creation.

Here are examples of ways in which Derby meets the diverse clients' needs:

- Georgian architecture reflecting the city's rise to prominence at the start of the Industrial Revolution;
- Video and audio tours by day and night;
- Emphasis on retail, heritage, personal development through museums, galleries, architecture and the city-scape;
- Further emphasis on cultural activities such as annual Derby Feste in October of each year;
- Unique activities like Peregrine Falcons nesting on the ledges of the mighty tower of the Cathedral in Derby. Ironically and somewhat unusually the Cathedral itself is not featured, yet it is the very existence of the Cathedral that gives this VCT its name.

There are several hotels in the Quarter; one is named after the Quarter and the other is a modern building and part of a mid-range chain.

Cultural Tourism offers an obvious example of how to create values for the users. It has been argued that social, economic or educational values emerge (Timothy, 2011). There are embedded values bringing about social or educational benefits as value-added services where the users are the recipients. This 'exchange-value' perspective, in which the 'producer' determines value, hinders a full appreciation of the role of services to diagnose a cultural situation in a territory and to manage a touristic interpretation and experience (see further sustainable value creation exchange values illustrations in Blazquez-Resino et al., 2013; Park and Vargo, 2012; Wieland et al., 2012). Furthermore, that may partially block a complete understanding of what is the very nature of tourism supply and demand. These embedded values suggest that tourism practices produce an exchange of intangibles, specialised skills, knowledge and processes. This points towards a prevailing view of tourism actions that is reinforced from the marketing perspective (Sheth and Parvatiyar, 2000) that tourism offers have been traditionally, above all, supply rather than demand focussed. This view is supportive of the specifics of service exchanges as a co-production, in this service-centred view, is a continuous social and economic process in which intangibility, exchange processes and relationships are central. This integrative view suggests that tourism offers are not a residual something offered to enhance a good, as with older notions of value added services (Vargo and Lusch, 2004). Tourism resources come to be viewed not only as 'goods', with value-added services, but also as intangible and dynamic functions of human ingenuity and appraisal, and consequently they cannot be regarded as static or fixed.

There is also an important development in this area with the introduction of 'Service-dominant (S-D) logic' (Vargo and Lusch, 2004, 2006; Vargo and Morgan, 2005) and what we would call value co-creation, which makes it necessary for analysis and

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implementation to move beyond simple constructions/recognitions of the interconnections (Andersson, 2007). Physical goods are only one element among others in a total service offering, from an exhibition to a living performance or a concert offer, including their real and their virtual components.

The re-focussing in tourism to a Service Dominant Logic is a shift from the means of production and the producer perspective to the utilisation of the user perspective. Since it is inherently both user-centric and relational (FitzPatrick et al., 2013; Lusch and Vargo, 2014; Shaw et al., 2011; Vargo and Lusch, 2004), the S-D logic provides a better foundation to examine virtual tourism activities in a destination. The societal purpose of S-D logic implies that service is the fundamental basis of exchange (Melis et al., 2015; Vargo and Lusch, 2008). This purpose highlights the interactive and the networked nature of value creation and exchange and is extending this value by engaging the visitor in the creation of the experience to ensure a fuller mutual value co-creation which moves us beyond the simpler notion of co-production by including a more comprehensive notion of production and consumption. Thus, the idea that 'the user is always a co-creator of value' has become a fundamental premise of S-D logic, for the tourism area, this means that tourism suppliers cannot deliver value, but can only make value propositions (Macbeth et al., 2004). According to this premise, the value in use takes place within the exchange value and requires new metrics of the users' perceptions of this value and this is particularly true in culture and heritage tourism where there are great differences in the experiences and expectations of the potential tourists.

The Value Experience can be presented in three phases, following Tynan and McKechnie (2009) who outline the significance of seeing the experience as a process or set of processes. Cultural tourism operates

throughout every phase of this model both as an activity and value source but also as a significant element in the value of the outcomes (Figure 3).

Within the presentation of cultural tourism, the traditional artistic notion of front staging is repositioned through the analysis of the operations and processes which allow the front to be seen and to survive against the ever-increasing experience of competition. The roles and processes of the back staging are fundamental to the sense and possibility of the experience. It is an addition to the critical processes which applies well in tourism and delivers insights that will serve not only to deepen our understanding.

Consuming a tourism experience is a process that involves three stages: pre-experience activities, engagement in the experience through value sources and post-experience outcomes. The pre-experience phase for consumers is predicated on its ability to provide extensive sensory information to prospective tourists. Such a capability is especially suitable for the tourism sector because many tourism products are 'confidence goods' that consumers are unable to test in advance and must decide whether to purchase based simply on available descriptive information (Gratzer et al., 2004; Liu, 2005; Wang et al., 2015).

Virtual tours often are simply panoramic photographs that do not permit any free navigation, meaning they are not genuine virtual reality (VR), but they importantly reveal an interest in VR-type technologies. Numerous researchers have advocated the incorporation of such interactive features into tourism websites (e.g. Cho et al., 2002; Doolin et al., 2002; Fotakis and Economides, 2008).

*Defining the virtual.* The tourism industry's capacity to provide high-quality, sensory data has improved

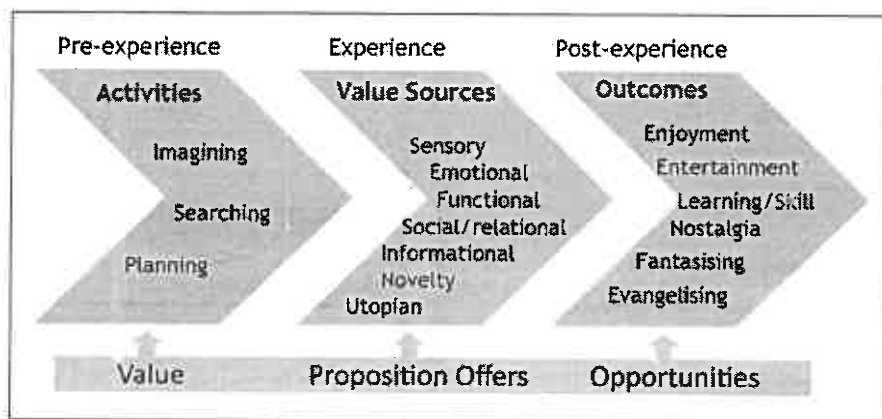


Figure 3. The phases of the value experience.

dramatically since the emergence of VR-type technologies from the 1960s and have become much more effective and sophisticated (Clarke et al., 2007). Our research in virtual cultural tourism has been greatly assisted by the reviews produced on the state of the art, especially Guttentag (2010). It is clear that this rapidly growing area includes a number of different definitions of the virtual. A consistent is necessary to capture the usage and experiences in cultural tourism. Our work has reworked definitions drawn from Burdea and Coiffet (2003), Vince (2004) and Gutiérrez et al. (2008). VR is defined as the use of computer-generated 3D environments, which we will refer to as virtual environments (VE). The crucial characteristics in defining this experience are the ways that the virtual come together to allow our tourists to navigate and possibly interact in the constructed real-time simulations. Again following Guttentag (2010), we see 'navigate' referring to the ability to move around and explore the VE, and 'interact' as referring to the ability to select and move objects within the VE.

It was Vince (2004) and Gutiérrez et al. (2008) who actually posed interactivity as a necessary component of VR, but our proposed definition suggests that it should be seen as optional, as this creates a more flexible definition which permits the discussion, development and participation in and through a wider array of technologies that are relevant to cultural tourism. Similarly, our work has argued that augmented reality (AR) – featuring the projection of computer-generated images onto a real world view (Vince, 2004) – should be considered as a valid and important element of VR. Although Burdea and Coiffet (2003: 1) claimed AR was not 'VR in its strictest sense'. Vince (2004) described AR as a type of VR system and earlier Milgram et al. (1994: 283) argued that 'AR and VR are related and it is quite valid to consider the two concepts together'.

Two further terms are important in clarifying the operation and practice of VR. A VR experience should be described by its capacity to provide both a physical immersion and a psychological presence (Gutiérrez et al., 2008). For us, 'Immersion' explores the extent to which a user is isolated from the real world. 'In a "fully immersive system" the user is completely encompassed by the VE and has no interaction with the real world, while in a "semi-immersive" or "non-immersive system" (the latter includes contemporary 3D video games) the user retains some contact with the real world (Gutiérrez et al., 2008)' (Guttentag, 2010: 638). On reflection, it can be seen that the level of immersion offered by a VR system is one factor that may influence the user's feelings of what Baños et al. (2004) called 'presence', which has also been presented in different ways though there is 'The common view is that presence is the sense of

being in a VE rather than the place in which the participant's body is actually located' (Sanchez-Vives and Slater, 2005: 333). Furthermore, we would recognise that 'A sign of presence is when people behave in a VE in a way that is close to the way they would behave in a similar real life situation' (Gutiérrez et al., 2008: 3).

Figure 4 shows a schematic model of how cultural tourism is perceived by consumers; first as anticipation and then reflection on the post-experience. Consumers undertaking VCT may also be able to anticipate and perceive services and products using the same toolkit. In this review of supported experiences designed and co-created by consumer and supplier, we reflect on relationship and connectivity through affiliation, control through planning, conservation expectations coupled to interpretation and education. We then discuss accessibility and sensory applications in VCT.

*Affiliative state.* Consumers have engaged the debate over access to sensitive heritage sites and the need to combat depredations of visitors since the dawn of relatively cheap and efficient jet transport in the 1970s. VCT has potentially the most important role to play in identifying groups within visitors and generating economies that are aware of site-protection needs and those that are able to join in site-protection work and a legacy of cleaning up after human desecration, site pollution and damage.

Recent approaches to engaging virtual tourism, or as Hill-Smith describes it 'Cyber pilgrimage' in the context of spiritual tourism encourages an experience-led component that is more self-mediated and more individualised. A pilgrimage driven by accessible and planned VCT may well have a legacy of liberated and personalised experiences that real-world tourism may find increasingly difficult to offer (Hill-Smith, 2011).

#### Control

Planning. VR also can serve as a useful tool for communicating tourism plans to members of an

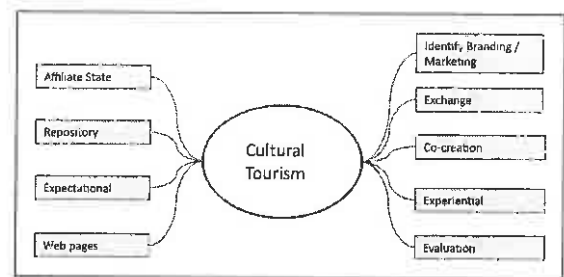


Figure 4. Cultural tourism: Consumption and reflection.

appropriate group or community, and possibly receiving input from such individuals. VR's attributes render it uniquely suitable for the visualisation of spatial environments (Vince, 2004), which is why VR is commonly exploited for the purposes of urban, environmental and architectural planning, with such an approach being used successfully in Sweden during the planning of two roads that passed through cultural heritage areas (Heldal, 2007).

Global approaches to identifying, agreeing and enhancing artefact and sites of cultural tourism can utilise VCT as a cost-effective and accessible method of management. Initial findings confirm that if we encourage and allow consumers to engage in 360 degree participation in management and strategy decisions, we fully engage the consumer to co-create and confirm theoretical approaches in participatory planning. This is an opportunity for VCT to underscore the potential for an empowered community at the destination to practice endogenous management of special heritage and cultural sites.

As with many contemporary issues, one of the key enablers of VCT is based upon a community-based approach which may be essential to developing and regenerating cultural tourism. Our approach embodies the learning destination, with a bottom-up, community-led and directed socio-political dimension, which is closely allied to the public choice model in more developed destinations.

Obstacles to participatory planning systems arise from the difficulty with iterative approaches to community engagement and within that community, stakeholder feedback and discussion to support 'see, plan and do' approaches to systematic protection and development of special sites. The consultant appointed to undertake community and stakeholder assessment of plans, proposals and the digestion of interim reports can use VCT for this purpose. One advantage of using VR for participatory planning is that it 'offers a way for individuals from diverse backgrounds to communicate through a visual language that mimics the way people interact with the environment in the real world' (Al-Kodmany, 2002: 199). Tourism plans can be communicated in a variety of VR programs. For instance, a museum could test the potential popularity of a special exhibit being considered, a tour company could test the preferences for certain attractions as exhibited by members of a target demographic or site managers could test different pricing and scheduling strategies to reduce congestion at overcrowded sites.

Special conservation concerns. Traditional models of heritage conservation relied on capacity-constraints on visitor experiences. Not only were sites off-limits to many visitors, the interpretation of

features and benefits was shrouded in mystery. These site-protection mechanisms are helpful in protecting the immediate environment but did little to identify and inform potential visitors of the value and critical nature of the fragile status of the heritage site under protection. VCT presents a mechanism by which visitors and communities can communicate the variable need for visitor capacity constraint measures.

Significant cultural items such as National Parks and special areas of environmental protection can be inspected by a wide range of potential visitors using VCT. The opportunity to view the special sites using technology can offset the depredations of large numbers of visitors that destroy the item and reduce the residual visitor satisfaction with that experience. An informed visitor may decide to avoid the site and may even be encouraged to pay for the protection of the site as part of the VCT visit. Such an example is illustrated by stereoscopic visualisation systems developed for observation of ancient Greek heritage sites in Calabria (Bruno et al., 2010; Limongelli et al., 2009).

Iconic cultural items such as Grecian settlements in Calabria (Bruno et al., 2010) can be inspected by a wide range of potential visitors using VCT. The opportunity to view the special sites using technology can offset the depredations of large numbers of visitors that destroy the item and reduce the residual visitor satisfaction with that experience. An informed visitor may decide to avoid the site and may even be encouraged to pay for the protection of the site as part of the VCT visit. Further examples may be found in Guttentag (2010).

It is possible that an attempted VR substitute would have the exact opposite of its desired preservationist impact and actually increase users' desire to visit the real site (Buhalis, 2003; Dewailly, 1999). Refsland et al.'s (2000: 20) claim that '[t]he majority of virtual heritage researchers believe that their work encourages people to actually go see the real site, giving the visitor extra knowledge to enhance the real site visit'.

#### *Interpretation*

Information exchange. The advantage of VCT over real cultural tourism is the ease with which key stakeholders can engage the dissemination of features and benefits of destination's sites to potential consumers. To benefit the host community management can translate virtual visits into predicted uptake by visitors in real time. This opportunity will inform resources required for ongoing maintenance and development appropriate for the sites. In theory, this enables communities to accrue social capital as well as economic return on sites. This information exchange can demonstrate how the learning and the social capital work

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alongside each other to effectively bring cohesion and cooperation into sharp relief and to elevate those six key concepts in practice. This paper has identified how good practices can be unpacked to identify the skills and resources that are needed for implementation and ongoing management, monitoring and review.

The bottom-up management of virtual cultural tourism incorporates leadership, networks, skills, partnership and social structures to execute specific projects. Communities throughout the world are addressing the shift in demand from consumers and shifts in resource allocation by suppliers in both the public and private context. Involved in the adaptability of communities to managing change in demand and adjusting supply are poor skills and relatively under-developed management capacity of front-line tourism employers and employees in all destinations (Lashley and Thomas, 2008). A second skill set relates to the dissemination of information addressing community tourism development (Scott et al., 2008). Finally, there is the relatively well known anomaly of development agendas confronting conservation and de-marketing of tourism honeypots which VCT can support through its accessibility and environmentally friendly footprint.

Without doubt, consumer feedback through sites like Tripadvisor has become a vital component in engaging the consumer and producer in competitive and quality-driven evaluation of sites and products across the range of cultural and heritage tourism offers. There are differences in sites which recognise the input from the customer/client/visitor as a legitimate part of the virtual reality.

Although most online travel communities currently do not seem to use VR, the increasing popularity of virtual worlds like SL (Bates et al., 2008) quite possibly foreshadows the adoption of such technologies, meaning such virtual worlds may become an important element in tourism marketing. One VR travel community named 'Itchy Feet' (<http://www.itchy-feet.org>) is being developed as an SL-type virtual world in which tourists can seek out travel information, communicate with other tourists and make travel purchases (Gärtner et al., 2008).

Although many VR entertainment applications are designed for home use, others, such as the Rewind Rome 3D 'edutainment' show, already have been established or will be established as attractions in tourism destinations. For example, in DisneyQuest's Indoor Interactive Theme Park in Orlando, 'Aladdin's Magic Carpet Ride' allows users wearing an HMD and a motorcycle-type apparatus to race through a VE on a virtual magic carpet. In 'Pirates of the Caribbean: Battle for Buccaneer Gold', a four-person crew wearing special glasses stands on a ship-

themed platform surrounded by four screens projecting 3D images. One of the players guides the ship through the VE while the other three players fire imitation cannons at virtual enemy pirates (DisneyQuest, 2009; Mine, 2003). One obvious advantage of such VR attractions over typical theme park attractions is that VR attractions are relatively small, thereby potentially permitting VR theme parks to be located in urban areas (Williams and Hobson, 1995).

*Educational purposes.* Many sites have protection issues regarding site carrying capacity and VCT can support the education of site users and other key stakeholders on the resource and capacity constraints involved. For example, 'A VR model can be an efficient means of communicating a large amount of information because it leverages the user's natural spatial perception abilities' (Jacobson and Holden, 2005: 2). Also, Mikropoulos (2006) found that the feelings of presence can assist the learning process. Additionally, 'There is general agreement among many educational technologists about the need for interactivity in learning' (Roussou, 2004: 3), and VR allows great potential for interaction.

Conservation and protection messages communicated through the internet do create and maintain a portfolio of socio-economic and environmental benefits that visitors have brought in the past and potentially impacts that will need mitigation in the future. Hjalager (2009) identified the benefits of VCT to festival sites in her exploration of the Roskilde Festival in Denmark over 30 years of research into improving benefits of cultural activity to a wide range of stakeholders through innovation systems which include aspects of contemporary VCT. Leighton (2010) approaches the topic from the perspective of widening traditional markets for cultural tourism by means of technological advances and increasing the potential markets for such cultural and heritage products. The term and practice of experiential marketing to new segments can thus be ascribed to participants in VCT.

VR's educational potential can be exploited in museums, heritage areas and other tourist sites. For example, the Foundation of the Hellenic World, a Greek cultural heritage institution, established a VR department in 1998 and has offered a variety of educational VR exhibits in its Cultural Centre (Gaitatzes et al., 2001) that have proven to be some of the Centre's most popular attractions (Roussou, 2004). Users journey through the ancient city of Miletus, become archaeologists who reassemble ancient vases from virtual shards of ceramic, conduct virtual experiments related to some of Archimedes' discoveries, select clothing from different time periods that transports the users to VEs representing the relevant eras

and assist an ancient sculptor in creating a statue of Zeus (Gaitatzes et al., 2001; Roussou, 2004).

### *Accessibility*

Opening up inaccessible sites. Contemporary policy and planning is underpinned by equal opportunities for all consumers. With legislation committing sites and products to accessibility and equality of opportunity legislation, VCT enables local and national governments to fulfil, perhaps partially, obligations to identify and potentially ameliorate accessibility barriers in tourism (Oliveri et al., 2012; Small and Darcy, 2011; Stendal, 2012; Wu et al., 2014).

Compliance through provision of accessibility information for disabled visitors is an outcome of VCT as we have demonstrated. VCT is an early indicator of potential costs and benefits to increasing the accessibility of heritage sites that formerly were off limits to certain visitors.

Disabled access. VCT allows consumers with disabilities opportunities for pre-visit inspection and aids decision making for both accessibility issues and for planning site improvements for access.

Increasing numbers of visitors are ageing and a wider range of visitors are attempting to assert perceived rights of access to difficult terrain and to socio-economically and environmentally sensitive locations. VCT allows consumers with disabilities opportunities for pre-visit inspection and aids decision making for both accessibility issues and for planning site improvements for access.

The specifics of many cultural tourism locations can pose inherent difficulties for accessibility. Many of the buildings and ruins that support the experience of our patrimony are by definition not the easiest of venues for visitors with different abilities. There are serious issues for visually impaired and wheel chair users that may not be fully overcome through the introduction of VCT, but the overall experience can be enhanced. One of the hallmarks of English culture has been William Shakespeare and his birthplace is a very popular attraction. However, access to the second floor of the house can prove difficult and this has now been addressed by a virtual solution, making it a more meaningful experience for those visitors (<http://www.shakespeare.org.uk/visit-the-houses/shakespeares-birthplace.html>). VCT allows consumers with disabilities opportunities for pre-visit inspection and aids decision making for both accessibility issues and for planning site improvements for access.

As an extension of the range of offers, it is possible to construct experiences in Second Life settings to overcome physical disabilities. By definition, such

access is limited to a virtual world, yet it certainly is preferable to any alternative apart from actual visitation, which in many cases may be impossible. For instance, a tourist site may be too remote, too expensive, too inhospitable, too dangerous, too fragile or simply no longer exist. In addition to providing a best possible alternative in such scenarios, virtual models can permit unique interaction with historical objects or other fragile items that cannot be handled in the real world (Paquet and Viktor, 2005). One example of the increased access offered by VR is provided by an exhibit developed for China's Dunhuang Caves.

### *Case study 2: National Park Canada*

National parks, such as Alberta's Elk Island and Wood Buffalo, have been losing ground to changing demographics and a new generation of Canadians that would rather be connected electronically than to the natural world around them. Now Parks Canada officials are using those social media tools that have been hurting them to give people a virtual tour of what they are missing and what they may never see first-hand.

'We know that this might seem to be counter-intuitive, but we think that there is potential in us exploiting those social media tools that are weakening Canadians' connections to national parks', said Tim Gauthier who is involved in a YouTube experiment to get more people connected to Wood Buffalo on the Alberta/Northwest Territories border. The intention is to widen potential consumers' awareness of issues of importance for parks and then to monitor the use of social media by consumers and possible visitors. An additional benefit is to attract these consumers to the park. A campaign such as this is designed to increase participation rates in visits as well as improve revenues for the maintenance of services and site protection.

Visitor numbers have declined to 185,253 in 2009–2010, compared with the 219,000 who visited in 2000–2001, Elk Island National Park has been hard hit, but not nearly as much as some of the more remote northern parks. Evidence shows that some parks can increase visitor numbers through VCT. Wood Buffalo, Canada's largest national park, has been doing better in recent years because of promotions designed to attract mostly locals at particular times of the year.

The Wood Buffalo video that is now available online describes how the park is home to the last wild colony of whooping cranes, the world's largest free roaming bison herd, the most northerly colony of garter snakes and an eclectic landscape that includes boreal forest, the remnants of a huge inland sea and one of the world's largest freshwater deltas.

## VCT and sensory issues

Tactile sensations are far more complicated than audio to replicate in VR because the sense of touch involves complex mechanisms of the nervous system. Nevertheless, researchers have made significant progress in re-creating certain tactile sensations. Vibrations, for example, now can be generated successfully in a variety of ways and are already widely used in many video games. As Paquet and Viktor (2005: 1) noted, 'Most people want to see reality and not only virtuality'. Moreover, many aspects of a tourist experience may never be fully replicable in VR. 'For instance, how is VR able accurately to simulate the smell of ocean spray and the splash of seawater on one's face as one participates in virtual surfing?' (Cheong, 1995: 421).

Also, researchers have developed 'haptic devices', generally coming in the form of gloves but sometimes covering a user's entire arm or body, which provide the user with 'force feedback' (Gutiérrez et al., 2008). Force feedback is felt as a very general tactile sensation, and Vince (2004: 80) compared the experience of touching an apple using a haptic device to touching an apple with a stick, as opposed to one's hand. Recent research also has made progress in the simulation of thermal cues and pressure that imitates an object's weight (Gutiérrez et al., 2008). Nevertheless, the difficulties of reproducing tactile sensations will be challenging to overcome and they highlight an obvious limitation of many VR systems.

Smell and taste often are regarded as the least important senses for VR, but noteworthy advances have been made in these two areas nonetheless. Olfactory stimulation, which can increase a user's sense of presence is achieved with 'olfactory displays' that spray certain smells or smell combinations at a particular target. Some challenges that olfactory displays must overcome include creating realistic scents, ensuring that one scent is removed before another scent is introduced, and accounting for the varying olfactory capabilities of different individuals. Nevertheless, researchers have developed olfactory displays that can record and reproduce a wide variety of odours, such as citrus smells, by mixing up to 96 different odour components (Bonnemaizon et al., 2011).

Also, as VR technology advances, these advances themselves may lead to various challenges. For example, Addison (2007) has all noted that VR data used for heritage preservation may have a shorter lifespan than tangible records like books or photographs. Although counterintuitive, the problem is that VR data are often stored in formats that quickly can become obsolete, rendering the data inaccessible.

The review we have conducted is suggestive of an agenda for future research in this field. Further research could beneficially focus on the interfaces between the virtual constructions contained in the offer, the tourists and the destinations. As Service Dominant Logic insists our focus should centre on essence of the experience at the heart of the visit and the service exchange. We have shifted from Goods Dominant Logic to Service Dominant Logic and the intangible elements of the exchange have therefore become more sharply the focus of further research. We need to understand the value of the exchange by researching more than the uptake of VCT and probe the qualitative aspects of the experience. Our work will continue to probe these 'soft' elements of the service exchange.

## Conclusions

When we consider our outline of cultural tourism (Figure 3) in the specific context of virtual cultural tourism we can see that certain factors are enhanced and others are left as challenges for the designers to address.

1. Affiliative state – this is difficult for VCT even in Second Life as the sociability of tourism is rarely addressed in the simulations.
2. Repository – there is a huge opportunity for culture and heritage to be captured as input to the systems but there is also the concern that many of the formats are suspect, may decay and may prove short lived.
3. Expectational – there are advantages here in being able to capture both the tangible and the intangible into the VCT, but this could then lead to an increase in dissatisfaction from those who do visit if the 'actual' is less pristine than the virtual.
4. Web pages – there is a positive link as VCT can be added to the web pages.
5. Identity/branding/marketing – this is the area where there are the strongest links and the clearest developments. Although this may relate more to the marketing activities than the VCT developments.
6. Exchange – only the most sophisticated system allow for direct interactive exchange. Most rely on temporally distanced exchange.
7. Co-Creation – with interactivity and feedback, VCT can make use of the co-creation processes but does not always do so at the current time.
8. Experiential – the quality of the experience of VCT offers can be impressive. However, the idea of engaging all the sense has proved more difficult to capture fully.
9. Evaluation – this can be built into VCT but it sometimes does not appear in the design at all and in other cases has been added as an after thought.

VCT encourages tourists to become enthusiastic site adherents and protectors in the affiliative mode. It permits a wide range of accessibility and interpretive options (Aiello, 2014; Neuhofer et al., 2014). It empowers site protectors to control access and smoothes seasonality, relieving traditional pressure points which have discouraged managers from further site visits. VCT enlists consuming tourists as co-creators, providing additional layers of meaning and understanding which we identify as having social, economic and educational benefits for site managers and site host communities.

In our opinion, VCT has two additional key strategic orientations for the future. The first is a role to support identifying options for site development. These include identifying key indicators of visitor impacts and evaluating the sustainability, monitoring, managing and reviewing of those indicators for the future. The second is the educational as well as affiliative opportunity to empower communities and tourists to recognise and prioritise the planning, information exchange, accessibility and conservation needs of special sites.

Without doubt there is a challenge to the post-experience role for product suppliers and policy makers that is beyond the scope of this paper but which will be critical for the continuity of service delivery and acceptance.

We acknowledge that VCT has potential as an educative tool for a wider range of new tourists. This is in part due to widening access to the internet and to a growing awareness among the more developed nations that cultural tourism can be supported with a heightened awareness of destination fragility. VCT and VR are seen as sustainable in the context of carbon offset, low-cost alternatives to marketing and promotion via print media, traditional tourism distribution channels – travel agents and tour operators – who present an expensive and time-consuming alternative option to VR.

As we have identified by staying at home, potential visitors can agree to exchange virtual contributions to conservation and share a growing affiliation to the values that created special cultural icons as places of sacred and secular pilgrimage. Sacred pilgrims that are prevented for various reasons from travel to special sites can now engage with the distinguishing and often unique spirit of a destination. That relationship is now enhanced technologically by sensations of heat, cold, odours and perfumes that were denied earlier armchair travellers.

VCT encourages new visitors to savour the experience that may well elude them in reality on the basis of low cost, non-political and carbon neutral factors. We contend that as a result of the innovations in

technology our experience and affiliation may help secure the heritage and cultural site for future generations. New cadres of visitors can experience that which was denied them previously. Women, the disabled, the aged and children can grow an understanding of the transformational power of tourism; these same groups can connect to provide an on-line community to strengthen the resources needed to retain the sites for the benefit of future generations.

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