Constructivist Research in Smart Tourism*

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Smart tourism is a social phenomenon arising from the convergence of information technology with the tourism experience. New ways of doing business, new patterns of experience and new problems concerning tourism destination image management and marketing are emerging due to the ubiquitous presence and influence of the internet and mobile devices. New conceptual tools are also available to enable researchers to further understand the social implications as well as the practical implementation of these new virtual and augmented smart tourism ecosystems. To this effect this paper introduces the constructivist paradigm and associated research methodologies as another toolbox for interpreting how smart tourism works as a form of soft power. The implications revealed by constructivism are that through smart tourism ecosystems, destination commodification and commoditization, experience and image formation are increasingly self-perpetuating, autonomous and organic social constructions. Researchers in information technology can use constructivist research to further explore these dynamic developments in smart tourism.

Keywords : Iaugmented Reality, Commodification, Commoditization, Constructivism, Reflexivity, Smart Tourism Ecosystems, Virtual Reality

Ⅰ. Introduction

Smart tourism describes the convergence of information technology with tourism. In smart tourism, people work together to build social ecosystems using information exchange via mobile devices connected to the internet. Information exchange includes a number of activities, including e-commerce and virtual reality (VR), augmented reality (AR) and, destination image formation. Smart tourism has digitally (re)constructed the social reality of tourism by making information exchange faster and more abundant. Information technology has made public culture more adaptable and reflexive than ever before. Destination managers and marketers no longer fully control the flow of information and commerce, and the manipulation of destination based experience, or image. Destination image formation no longer relies on brick-and-mortar travel agencies and glossy travel brochures. It is becoming equally a product of the user created content (UCC) circulating in social media in the form of personal narratives and critiques, shared advice and comments, and photographs. Onsite, tour operators no longer fully control the narratives at sites and attractions as increasingly augmented reality based technology helps visitors to navigate independently.

Smart tourism challenges researchers to consider the paradigm shift that has been underway in tourism research for over a decade [Hollinshead, 2004]. Traditionally a majority of tourism researchers have been practicing survey-based and statistically driven studies that seek result oriented findings. These types of studies are hypothesis driven and the results are considered generalizable. They often focus on 'scale development' or the testing of 'models'. The minority of tourism researchers practice interpretive or naturalistic inquiry which seeks insight into how social reality is constructed. This point of view recognizes that there are multiple constructed and holistic realities - or points of view- and that they are situational. Constructivism emphasizes that researcher and participant will reflexively and mutually influence each other. Constructivist studies are reflexive and rigorous and, that while individual opinions might change over time, the opinions themselves or the products of those opinions are empirical objects. Rather than producing generalizable and result oriented findings, constructivist studies focus on interpreting relationships between or across viewpoints and, on the potential replicability of the study. The paradigm shift called for by Hollinshead [2004] is for tourism researchers (and IT researchers) to implement more constructivist research. Also, to recognize that post-positivist and constructivist approaches are highly compatible when orchestrated together.

This brief glance at paradigms illuminates the immediate problem in smart tourism. This new rapidly emerging-mutating-digital world brings IT and tourism researchers together over new situations where pre-conceived (*a priori*) and reductionist hypothesis-driven research might fail to grasp the multiple socially constructed issues at work in this new information technology age. More reflexive approaches will enable researchers to identify patterns in situation-based studies driven by constructivism. Therefore, in this paper, the essential relationships between IT and tourism are described in terms of smart tourism. Then, from the con-

structivist view, it is suggested that smart tourism ecosystems-people linked through electronic networks-are powerful modes of soft power, at work shaping destination tourism culture. Further, two constructivist methods are briefly described that work to decode how soft power works (through smart tourism) in destination tourism. Then, the potential for constructivist research in smart tourism is discussed in the context of existing information technology oriented research.

Ⅱ. Information Technology and Tourism

The role of information technology in tourism is in the development and implementation of technical systems that support tourism related businesses via the internet and how they affect the business-customer relationship in tourism. These systems affect the process of tourism product distribution, pricing and consumer interactions [Buhalis and Law, 2008]. Internet information systems are core socio-technical entities of hotel, airline and travel agency businesses [Lee and Kozar, 2006]. Information technology is concerned with the quality of these systems in how well they support business-customer communication and interaction [Gorla *et al.,* 2010]. The internet allows for speedier feedback by improving travelers' ability to voice complaints regarding their experiences [Buhalis and Law, 2008]. IT researchers focus on issues related to how internet based information search might influence traveler behavior by reducing perceived risks and improving the quality of trips and, influencing the amount of money spent during the visit. IT researchers also ad-

dress threats to travel such as cybercrime in e-commerce including, auction, vacation and gaming fraud, and spamming and identity theft [Mills *et al.,* 2002].

It is important to recognize that information technology in tourism is also at the core of customer-customer or rather, tourist-tourist communication. Couch surfing, ride sharing and sites that emphasize the importance of customer or user comments regarding destination services are examples. IT in the context of smart tourism works to drive soft power through traveler connectivity [Womack, 2009]. IT is at the smart core of socially constructed travel destinations.

In this paper, IT-based research in tourism is discussed in terms of three themes, including: e-commerce and virtual reality (VR); tourist experience and augmented reality (AR); and destination image formation. These themes re-contextualize the convergence of major research themes in IT and tourism research, a key goal in this special issue. These themes also highlight the role of constructivism in smart tourism research, as discussed in the following sections.

2.1 E-commerce and Virtual Reality

Information technology systems support online tourism related business, or e-commerce in three ways. Through commodification, they facilitate the conversion of things into 'products' with exchange value [Hunter, 2013]. These include airline tickets, accommodations, car rental services and tour packages which are purchased directly via online shopping sites [Kim, *et al.,* 2013]. These travel businesses, through commoditization, promote the destination by presenting internet users with rich entertaining in-

formation about the experiences awaiting them during a future visit [Hanefors and Mossberg, 2001]. Destination marketers also commoditize the destination by presenting informative material about local culture or entertainment or otherwise inspiring potential travelers to purchase destination-related products [Werthner and Klein, 1999]. They are focusing on the promotion and sale of the destination experience itself as opposed to other competing destinations. E-commerce is also shaped by the user to user connectivity it provides travelers. Travel businesses such as Expedia, Travelocity, and Orbitz increasingly employ interactive platforms that encourage the internet user's participation [Chen, 2006]. In addition to purchasing travel items, customers also spend time reading and writing reviews and interacting with other customers [Kah *et al.*, 2010].

Increasingly powerful internet connections and computers provide the platform for increasingly sophisticated remote destination experiences. In this new context, online environments work as virtual reality (VR) platforms that act as a form of information technology in which the user navigates in computer simulated environments [Hunter, 2014a]. The user experiences the illusion of an immersion into remote destination-based experiences. These virtual tours offer pre-experiences that can influence the perceptions of potential visitors by providing remote navigation of destination and venue-based products. Virtual tours also help people with constraints can enjoy surrogate travel experiences. Virtual tours can regulate or decrease visitation by offering a substitute virtual experience, acting as conservation tools that enable recovery of sensitive or threatened

archaeological, cultural, historical or natural sites and environments.

The selling of travel services and the destination and the 'reality' of travel are essential problems in tourism research. Commodification and commoditization as well as authenticity are basic theoretical themes in tourism research and the determination of singular definitions of such are contested. Authenticity and commodification are interconnected notions that reflect the problematic relationship of money to culture in tourism. The problem of authenticity has been called a 'red herring' by Bruner [2004], and Cole [2007] has worked to transcend the issue. Both authors have employed a constructivist approach to the problem to re-contextualize it as a multidimensional issue.

2.2 Tourist Experience and Augmented Reality (AR)

Information technology systems are also at work onsite, during the travel experience. Augmented reality (AR) describes travel technology that uses dynamic packaging in the form of GPS navigation and ubiquitous onsite contextual information to supplement or replace the traditional tour guide. Augmented reality consists of context aware applications that project commercial and historical information and touristic narratives through the view seen in the user's hand held device [Hunter, 2014a]. During the onsite travel experience augmented reality provides background information on the area of interest [Cheverst, *et al.*, 2000] including landscape information, multiple viewpoints of the environment and image recognition platforms viewed through an adaptive display.

IT researchers are interested in the quality of AR's GPS and marker-based applications systems which are measured in terms of content and responsiveness [Chae *et al.,* 2002; Kim *et al.,* 2004]. Other dimensions of quality include value added services and customer support and visual design. Management and customer service, system reliability and connection quality are also highly important [Kuo, *et al.,* 2009]. IT researchers are also aware of the impact that information technology can have on visitor planned and unplanned behavior, decision-making, motivations and satisfaction in conjunction with tourism, exhibitions and conferences [Chung, *et al.,* 2013].

In tourism research the problem of touristic experience is a key theoretical theme. Researchers have problems with the representation of the travel experience, especially how it is conveyed electronically through the image as well as the medium (television, computer or hand held device) [Baudrillard, 1988; Hollinshead, 2004]. Tourism researchers also have the problem with the touristic experience in terms of how to differentiate it from performance [Hunter, 2014b]. These problems, like those mentioned in the previous section, revolve around the issue of positivist quest for a single reductionistic solution to (or model of) social experience. In reality the tourism experience is multidimensional and IT and smart tourism can help offer theoretical and operational solutions via a constructivist perspective.

2.3 Destination Image Formation

Information technology is also highly involved in tourism destination image formation.

Traditionally destination imagery was projected toward potential and onsite tourists in the form of print and electronic media for marketing purposes [Pritchard and Morgan, 2001]. Faced with the destination marketers' authority implied in the distribution of expensive print brochures and guidebooks and one-way television broadcast advertising, tourism researchers struggled with destination image theory as a "nebulous concept" [Hughes and Allen, 2008, p. 30].

But increasingly visitors equipped with mobile devices and internet connection can upload their photographs immediately to travel websites and social media. In this sense IT has liberated the photograph from print media, making its creation, storage, presentation and exchange highly accessible. The projection and perception of destination image are no longer distinct, mutually exclusive concepts [Hunter, 2013]. The tacit authority of destination marketers, accentuated through their ability to produce expensive glossy tourist brochures and guidebooks has been compromised by user generated content. Now, through IT, destination image has been transformed into a more organic social construction based on the real-time interests and experiences of visitors. The one-directional authority of markets to determine or control what the visitor sees is replaced by a more multidimensional view [Gallarza *et al.,* 2002]. This visitor-marketer constructed image is constantly developing and maturing as representations of the destination circulate online [Ryan, 2002). In this sense smart tourism has already created operational solutions to theoretical problems in tourism research lacking in a constructivist outlook.

Ⅲ. Smart Tourism and Soft Power

Information technology has completely transformed commercial exchange, social experience and destination image formation in tourism. And IT research remains focused on technical systems and the business-customer relationships they support. But as mobile technology and connectivity infiltrate the tourism experience to the point where the user-user relationship takes the forefront, some researchers need to focus on the soft power of the new smart tourism phenomenon. Smart tourism includes all forms of mobile technology and social media and the digital traces they leave and, the interpretation of how actions and roles via trans-media narratives (search engines, social media and software applications) affect people politically. In smart tourism researchers need to recognize that technology is taking an increasingly central role in defining how people relate and react to each other. While smart tourism technologies are generative and transient the social, cultural and economic impacts of information technology on tourism are profound. Smart tourism is an emergent form of soft power.

3.1 Soft power

Soft power uses inducement rather than coercion to accomplish a multilateral strategy of balancing rather than victory over political/hostile neighbors [Huang and Ding, 2006]. Soft power is the "possession of capabilities or resources that can influence outcomes" [Nye, 2004, p. 3] as opposed to hard military and economic or 'situational command power.' Soft power resources include elements of culture, political

values and foreign policy. These resources are also central to international tourism [Leheny, 2006]. Tourism boosts soft power by promoting national culture, democracy and travel-friendly international treaties. The attractiveness and appeal of the culture of a people and its customs, political ideas and policies are strategically communicated through tourism to ensure that other populations and nations consider them legitimate and acceptable. Soft power works by constructing alluring images of a place in ways that populations within and between nations will tend to appreciate, particularly in terms of "the felt brilliance of its history and the believed genius of its contemporaneity" [Hollinshead and Chun, 2012, p. 229].

Smart tourism is central to contemporary international tourism. It drives soft power by making tourism products more readily available via e-commerce, and it makes destination attractions available in their best light to remote viewers via VR. Smart tourism also makes the destination more accessible to visitors through AR, including GPS navigation and ubiquitous onsite information. Most importantly smart tourism drives soft power through connectivity. It blends persuasion, attractiveness and attention [Womack, 2009] through the production and sharing of destination-related representations online through traditional websites and social media sites. Smart tourism makes information more interactive and more reflective of the interests of the user. Smart tourism makes new capabilities and resources available to the traveler and to destination based stakeholders. It blends benignity, brilliance and beauty [Vuving, 2009] in the smart destination experience.

3.2 Constructivism and Reflexivity

Constructivism is a useful approach to understanding the highly contextual situations at work in smart tourism. Constructivism is a reflexive outlook that embraces situations in which multiple worldviews or truths are at work [Hollinshead, 2006]. It works by mapping social settings without reducing them to fixed immobile structures. Constructivism provides a way for researchers to approach smart tourism empirically but without *a priori* expectations in order to identify and interpret the effects of technology on 'ecosystems' of people.

As information technology and tourism become increasingly entwined, researchers need to become more sensitive to the social construction of public culture [Billig, 2006] and the mechanics of tourist choices. Researchers must work to transcend a functionalist view on information technology [McIntosh *et al.*, 2004] and embrace an understanding that IT brings ontologically based cultural effects [Jack and Phipps, 2005]. Deeper reflexive interpretation can unlock the semiotic and subjective implications of smart tourism. The reflexivity of constructivism helps researchers to identify multiple points of view in order to better understand how subjective viewpoints, sign systems and power relations work in dynamic social systems [Meethan, 2011]. In constructivism the researcher gains an emergent understanding of the multiple and interconnected realities in smart tourism ecosystems. The researcher attempts to identify their "situatedness" [Hall, 2004, p. 148] within networks formed among remote human to human encounters and negotiated knowledge production [Feighery, 2006]. In smart tourism, resear-

chers are interested in the dynamic exchange of diverse points of view in the form of information, as much as they are in the structure of that exchange.

Ⅳ. Constructivist Methodologies for Smart Tourism Ecosystems Research

Constructivism is often seen as being the foundational ontology for qualitative methods in tourism research. This (false) perception is reinforced by conceptual divide between quantitative and qualitative research where the quantitative approach in this context is idealized as over-objectifying the subject of study, producing findings that are overly reductionist; the qualitative approach reflexively representing the situational and emergent presence of multiple truths or realities. In reality, qualitative research (interviews, focus groups, and participant observation) often produces pre-formulated and generalized findings and, disposable solutions [Hollinshead, 2004].

In reality, constructivism is not reducible to a methodological approach. Rather, it works to join together multiple research approaches to enable a more reflexive, multidimensional and self-aware understanding of the relationship of IT to tourism. Constructivism refers to the way that multi-method research or quantum research methods work by identifying the subjectivities and signs that circulate in society are "irreducibly paradoxical" [Brown, 2009, pp. 240-241]. Q method and V (visual) methods are two examples of constructivist methodologies for smart tourism ecosystems research that have yet to reach their full potential in IT and tourism

research. These methods include qualitative and quantitative elements but retain a fully reflexive, non-reductionist design.

4.1 Q method

Q method is the scientific and systematic study of operant subjectivity [Stephenson, 1978]. It is designed to explore the flow of communicability surrounding any topic, especially those where clusters of strong operant subjectivity might be found, such as individual or shared perspectives on identity, power, representation or other social constructions [Eden *et al.,* 2005]. Q method works by identifying clusters of subjectivity within a concourse (a specialized discourse) while recognizing that individuals might update or revise their attitudes. The clusters will continue to represent the indigenous (original and unique) functional subjective divisions within the social group [Brown and Kil, 2002]. Thus Q method research findings can be reflexively generalized regardless of the small sample sizes used and whether probability sampling is used [Gobo, 2008]. Q method reflexively combines quantitative statistical methods-to identify factors or clusters of subjectivity-with qualitative interpretation. The quality of Q method findings is based on: 1) an explicit theoretical definition of the concourse, 2) rigorous extraction of representative Q statements, 3) rapport between researcher and respondent, and 4) case-specific interpretation of results [Hunter, 2014b].

Q method research is fully situated in the constructivist paradigm because it is reflexive in eliciting multidimensional views on how, for example, stakeholders (residents, visitors, mar-

keters and retailers) feel about and act on controversial development and sustainability issues such as destination marketing, infrastructure development, and mega-events and the general flow of communicability surrounding a destination's tourism economy. Q can work as a stand-alone research method or in combination with R methods (surveys) to help researchers and smart tourism developers to map these social settings [Hollinshead, 2006] and adapt or update user IT platforms to changing and multiple stakeholder demands. Q method research is geared toward collaboration with developers to construct smart systems rather than fixed immobile IT structures.

4.2 Visual methods

Visual methods are used to explore and interpret the meanings encoded in materials such as photographs, video, paintings, diagrams and maps [Rose, 2003]. These representations convey various denotative (literal) and connotative (implied) messages [Metro-Roland, 2009]. V methods combine theoretical sampling with an analysis that will include the quantitative characteristics of content analysis-the objective counting of 'types' in a sample of representations-with the qualitative (semiotic) interpretation of the representation as an empirical object [Pennington and Thomsen, 2010]. The semiotic interpretation addresses the theoretical significance of these signs in terms of the particular research context in which it is practiced [Metro-Roland, 2009]. In smart tourism, semiotics can be used to interpret how the destination as a whole is hard branded [Evans, 2003] through e-commerce or virtual reality and how particular experiences

and attractions are represented onsite through augmented reality. V methods help researchers to identify how the destination is presented, experienced and expressed through information technology via certain privileged views [Crump, 1999], social conventions, power relations, metaphors or other collectively shared fields of reference [Smith, 2005]. Online, using theoretical sampling and content analysis, the sources of destination image formation (visually) can also be identified, not only in terms of the producers, but also in terms of the 'types' of representations being uploaded [Hunter, 2013].

V methods are used to explore the highly representational world of tourism experience in smart tourism. In the view of constructivism the smart experience is an emergent construction of multiple and interconnected realities. As no single model can fully capture the phenomenological situatedness or remote human to human encounters, a constructivist approach uses collaboration and convergence to map and keep abreast of the accumulating visual smart tourism present and its representations.

V. Discussion and Conclusion

The smart tourism phenomenon is bringing information technology researchers and traditional tourism researchers together. In this paper, some of the ways in which IT is transforming tourism have been discussed. Also, constructivist research in tourism was introduced to illustrate how smart tourism can be viewed as a 'constructed' experience that is evolving through advances in mobile and connected technology and, the destination and tourists' ability or willingness to use such technology.

It was also suggested that acceptance of technology and the uses to which it are put are directly related to the operant subjectivity of the user, and the connectivity of the media. In other words, media-mediated experience make up a semiotic loop in which the perceived authority of the destination marketer is overturned or at least rivalled by user created content. This is the soft power of smart tourism. It forms ecosystems of destination and traveller and among travellers that are organic and holistic, self-regulating and self-perpetuating. Smart tourism is a generative phenomenon. The long-standing concern in tourism research, however, is that researchers have divided priorities. Some are focused on finding reductive and generalizable solutions to technical systems and their implementation. Others are focused on context specific social issues and the impacts of tourism. Constructivist research in smart tourism seeks to bridge that gap.

Articles appearing in the Asian Pacific Journal of Information Systems represent how information technology researchers approach problems related to tourism. Researchers understand that information is constructed by remote human to human encounters and negotiated knowledge production [Feighery, 2006]. They also know that onsite experiences are also mediated through the use of mobile applications for navigation and information search. Researchers in information technology recognize the complex psychological forces at work in this context and devise studies to closely examine the individual's behaviour. In Korea, in particular, researchers recognize that problems related to information technology use-habit, intention, satisfaction-are highly experiential [Lee,

2011] and they seek to identify structured relationships between psychological constructs to predict user behaviour. Such constructs frequently include benefit, sacrifice, perceived value and intention [Han *et al.*, 2013]. In addition to the psychology of the consumer, researchers also examine problems associated with service providers that in tourism would be concerned with attracting new customers and maintaining the return customer. In this view the problems of satisfaction and usefulness and the like are associated with technical concerns regarding ease of use and product involvement [Lee, *et al.*, 2010]. Some researchers seem to reach tentatively toward the sociological problems of information technology use, such as trust, by discussing how risk might play a part in selecting a seller to buy online [Hong *et al.*, 2013] but these researchers might emphasize the complexity of this approach due to 'many behavioural dimensions that must be taken into account'. Research on word-of-mouth (eWOM) is promising for smart tourism because the focus is on the social dynamic-communication-between customers and sellers and also on the dynamic role of reviewers as influential players [Lee *et al.*, 2013].

The ontological difference in information technology research versus constructivist driven research is reflected in Lee *et al.* [2010] comparative content analysis of keywords used in Korean journals. They found those appearing most frequently to be: e-commerce, trust, technology, e-learning, and purchasing and recommendation systems. In international IT journals, keywords included outsourcing, research method, quantitative method, and design research and information technology. They make the observat-

ion that Korean scholarship appears to focus on applied/operational topics rather than on theoretical-or by extension, constructivist topics. But by glossing over the theoretical, researchers might overlook the fundamentally cultural element of IT, especially in tourism. The emergent and generative representation of the destination through smart tourism is not controlled by any single authority or regulatory body. It is the outcome of an electronically enhanced network of intercommunication between travellers, commentators and travel businesses. Therefore the flow of communicability about the destination might be more likely to be found in the interpretation of social conventions and the observation of unstated intentions than in the micro-analysis of individuals' stated tastes and preferences.

The constructivist research outlook presented in this paper offers the reader other creative approaches to interpreting smart tourism. Rather than suggesting that constructivism should replace the research currently being presented in the Asian Pacific Journal of Information Systems, it offers opportunities for increasingly reflexive tourism research collaboration and dialogue. Constructivist research helps to map the social context of tourism and identify which of the more individually oriented issues require further study. This paper also argues that smart tourism concerns more than the individual user. It is a form of political soft power that can transform destinations through information technology and the tourism experience. Finally, this paper suggests that focusing only on individuals' pre-travel purchasing decisions and their satisfaction with the travel experience, smart tourism can have negative effects on the destination. Online, users are distanced from the ex-

pectations and responsibilities of the real world. This is a concern to researchers not only for potential economic and social effects on the destination, but users may find the online experience to be illusory and may question the authenticity of the destination experience [Guttentag, 2010].

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