

Expectation of Travel Experiences with Wearable Computing Devices¹

Iis Tussyadiah

Hospitality Business Management, College of Business
Washington State University Vancouver, USA
iis.tussyadiah@vancouver.wsu.edu

Abstract

Based on a content analysis of textual data containing people's ideas to use wearable computing devices, this paper identified five patterns of personal motivations to use wearable devices for travel and tourism experiences. They are exploration, adventure tourism, travel documentation, travel reporting, and positive transformation. These patterns suggest a potential transformation in tourists' behaviour due to perceived new ways of interactions with technology and with the near surroundings. The different features and functionalities that are unique to wearable technology trigger changes in three areas: the shift from tourists to explorers, an explosion of first-person visual travel narratives, and more social travel supported by real-time connectivity. Further, the findings also suggest a potential shift in terms of how personal technology is situated in human experience, from mediation to embodiment.

Keywords: wearable computing, tourism experience, mediation, embodiment.

1 Introduction

Tourists' interaction with and consumption of the physical and sociocultural attributes of tourism destinations is the central factor that defines tourism experience. In that, a meaningful tourism experience is a result of meaningful encounters between tourists and the unique characteristics of the places they visit. Today, tourism experiences are getting more and more mediated by the use of information and communication technologies (ICT) (Tussyadiah & Fesenmaier, 2009). Indeed, recent research has conceptualized and identified that ICT has the capabilities to facilitate more meaningful interactions between tourists and tourist places and, therefore, to enhance tourism experience (Wang, Park, & Fesenmaier, 2012; Neuhofer, Buhalis & Ladkin, 2012). Tussyadiah and Zach (2012) identified how the use of geo-based technology such as navigation systems and online maps during traveling assists tourists to acquire geographic knowledge necessary for a better experience with places. Further, the use of context-aware technology, specifically combined with social network platforms on mobile devices, also supports new, creative encounters between tourists and attractions, businesses, and the social components of tourism destinations (Tussyadiah, 2012).

More recently, triggered by the introduction of *Glass*, a wearable technology device developed by Google, Inc., wearable computing is considered the next disruptive technology that is anticipated to have a major impact on the ways people interact with

¹ Citation: Tussyadiah, I. (2014). Expectation of Travel Experiences with Wearable Computing Devices. In Xiang, Z., Tussyadiah, I. (Eds.), *Information and Communication Technologies in Tourism 2014*. Switzerland: Springer International Publishing.

their surroundings (Tate, 2012). Indeed, the introduction of the device was responded with curiosity, excitement, and fear (Farber, 2013), marking the challenges facing the integration of this technology into the society and culture. In the context of tourism, while smart mobile devices allow tourists to stay connected, well-informed and fully equipped for travel-related performances (e.g., information search, navigation, social networking, travel reporting, etc.), almost hands-free wearable devices such as *Glass* are expected to enable these processes to be even more immediate, less cumbersome (e.g., allowing people to look ahead instead of down on a mobile phone screen), and rather surreptitious. Many have speculated how *Glass* will revolutionize tourists' behaviour and the tourism industries (Dickey, 2013; Prabu, 2012), specifically in the areas of guiding with augmented reality and information overlay, travel reporting with first-person view (FPV), and instant navigation. In order to better understand the potential transformation of tourism experience with wearable computing and its implications to destination marketing and management, it is important to explore people's expectation of use of this device in the context of travel and identify the expected behavioural changes and modifications in tourists' interactions with places and others while traveling. The goal of this study is to identify and explore the expectation of use of wearable computing technology for travel-related experiences. Particularly, this study analyses people's ideas and imagination of experiences with tourist places using *Glass* and its functionalities.

2 Personal Technology and Tourism Experiences

Recent studies in tourism and ICT has identified the important roles of personal technology such as personal computers, tablets, and smartphones in travel experiences (e.g., Tussyadiah, 2013; Wang, Park and Fesenmaier, 2012). These roles are associated with enablement (i.e., making certain experiences possible, such as provision of vicarious experiences through virtual reality technology) and facilitation (i.e., enhancement of experiences, such as provision of assistance through information and recommendation). The facilitative role of technology in tourism experience is conceptualized as technology mediation, suggesting that technology can assist tourists by providing and/or limiting access to certain experiences. In other words, in the process of mediation, personal technology is situated in between users and artefacts, which can be clearly illustrated in the context use of mobile phones for tourism experience (Tussyadiah, Fesenmaier, & Yoo, 2008). However, recent development indicates that personal technology will become wearable, implying the potential changes in the ways users interact with technology and with others. Hence, an alternative theoretical explanation is necessary to illustrate the role of personal wearable technology in tourism experiences.

Recent human-computer interaction (HCI) studies link the concept of embodiment to user experiences with wearable computing, especially in the contexts of embodied interaction with artefacts and near surroundings. Ihde (1990) suggests the non-neutrality of technology-mediated experiences. He argues that technologies appear in between humans and the world and change human experiences, enhancing some aspects while reducing others. While technologies mediate human experiences, they also transform these experiences. He explains embodiment of technologies in the use case of seeing the world through glasses. Initially, glasses are in a mediating position

between user and the world. However, as glasses are embodied by the user, there is a technology “withdraw” in which they become unnoticeable, but an essential part of the seeing experience, as illustrated in Fig. 1. Embodiment of technology results in a symbiosis of technology and user within human actions. As the seeing experience is mediated by optical technologies; the user is experiencing “seeing through glasses,” which, in itself, is a transformed experience.

Importantly, embodiment is associated with the role of the body in human actions. Ehn and Linde (2004) asserts that people describe things in relations to their bodily capacities (e.g., tall buildings, crowded streets, big cities), especially when they perceive the surroundings and perform certain activities in spaces. Embodiment of technology is believed to be able to extend the perceptual bodily sense of the users (Ihde, 1990) as technological capacities are integrated into users’ skills. For example, a driver extends his/her bodily capacities through the “body” of the car when navigating through the highway or at a parking lot.

a. Mediation



b. Embodiment

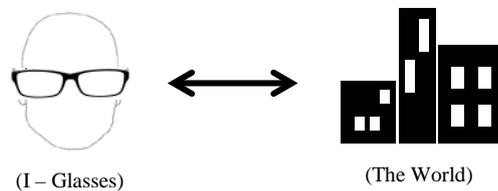


Fig. 1. Technology Mediation and Embodiment (Adapted from Ihde, 1990)

The concept of technology embodiment is relevant to wearable computing technology such as *Glass*. A total embodiment of wearable computing devices will allow them to “disappear” (i.e., a technology withdraw) as they become a part of the user in certain experiences. As users become tourists, wearable computing devices mediate their experiences with the destination. Depending on the destination contexts, interactions between tourists and wearable computing devices can become important in shaping the tourism experience. However, as tourists actively embody the devices, they can become inseparable from and extend the bodily sense of the users. The acts of seeing a tourism attraction (i.e., user – artefact) and searching for information regarding the attraction (i.e., user – technology – artefact) are no longer considered separate as wearable computing devices enable tourists to see the attraction through a different lens with layers of relevant information (i.e., [user-technology] – artefact).

3 Methodology

Through an initiative called Project Glass, Google, Inc. held a contest to give an opportunity for potential early adopters to purchase the Explorer Edition of Glass by submitting how they would use Glass in a post on social networking and social publishing sites: Google+ and twitter using a hashtag #ifihadglass for the duration of one week from February 21 to 27, 2013. For this study, tweets (i.e., microblog postings on twitter) containing this hashtag were harvested from twitter developers application programming interface (API) by creating and running a programming script on Google Documents from February 23 – 27, 2013 to explore potential users' expectation of Glass use for travel-related experiences. This effort resulted in 17,373 tweets. Duplicates (i.e., the same messages posted repeatedly by the same twitter users) and irrelevant tweets (e.g., twitter users using the trending hashtag to post irrelevant messages) were eliminated through manual data management using Microsoft Excel, resulting in 10,035 unique tweets. At a later date, a complete twitter submission list for the contest was published on a Google Fusion Table, containing a total of 13,611 tweets. Hence, the total number of tweets used in this study represents approximately 74% of the overall submission on twitter.

At an initial stage, an open coding procedure following a standard content analysis (Kassarjian, 1977) was conducted using a text analysis software, Atlas.ti, to identify submissions that are relevant to travel experiences. All tweets were carefully read and coded employing a descriptive coding procedure. Three codes related to travel experiences emerged: "travel," "adventure," and "destination." This effort resulted in 930 unique tweets to be included for further analysis. In order to explore and extract the themes from the text referring to the potential use of Glass for travel and tourism, several analytical processes related to product use and intention were consulted to guide the abstraction level of the content analysis. A relevant conceptual framework was found in Means-End Theory (Gutman, 1982), which stipulates that individuals make product choices based on deeply held personal values. Specifically, Means-End Chain Analysis suggests that consumers relate to products in a hierarchy consisting of three levels: product attributes (A), consequences of use (C), and personal values (V) (Perkins & Reynolds, 1988; Reynolds & Perkins, 1987). Research applying Means-End Chain Analysis typically applies laddering interviews, relying on interviewer–interviewee interactions to gather consumer information regarding how they translate product attributes into meaningful associations with themselves (Grunert, Beckmann & Sørensen, 2000). The results are then presented in A-C-V chain to explain the extent of relationships between product attributes and personal values based on co-occurrences of the three dimensions within consumer responses. However, since this study uses an organic form of textual responses, most of the collected tweets do not contain all three dimensions of the means-end hierarchy (i.e., co-occurrences of A, C, and V are not always explicitly present within a tweet). Hence, it generates a limitation to measure the extent of A-C-V relationships. To that end, this study adopts the conceptual framework in Means-End Theory to identify the consequences of use of Glass based on its features and functionalities and to explain the relationships of such use with personal motivations and values, but it does not seek to measure the extent of these relationships. In other words, to achieve its goal, this study relies on an interpretation of qualitative information regarding A-C-V relationships rather than quantitative measures to

estimate their extent (i.e., frequencies, number of occurrences, etc. are interpreted, but not calculated to generate summation, averages, etc.).

Specifically, the conceptual framework in Means-End Theory serves to guide in identifying emerging themes from the tweets during content analysis. The three dimensions were interpreted into three pre-set code families. Product attributes are comparable to features and functionalities of Glass perceived by its potential users (code family: "Attribute"), consequences of use are the different use activities of and/or facilitated by Glass (code family: "Activity"), and personal values are the motivation behind such use (code family: "Motivation"). Emergent codes within the code families are then refined and reorganized to consolidate meanings and explanation; code-to-code relationships and associations were interpreted. The next step was to reflect back on the tweets and the refined codes to identify patterns (i.e., repetition and/or consistencies of actions), categories, and themes by finding similarities, differences, sequences, correspondences, and causations (Hatch, 2002; Saldana, 2009). The last step is to systematically link the patterns, categories, and themes identified from the data to a broader, higher-level concept.

4 Results and Discussion

The content analysis resulted in five categories representing patterns of motivation to use Glass for travel-related experiences: "Explore" (i.e., using Glass to explore and experience different places around the world), "Challenge" (i.e., using Glass to challenge self with adventures and extreme activities), "Capture" (i.e., using Glass to record and document travel experiences), "Share" (i.e., using Glass to connect and share travel experiences with others), and "Transform" (i.e., using Glass to make a positive change in the society through travel experience). It is important to note that these patterns should not be interpreted as motivations to travel, but motivations to use Glass for travel. Fig. 2 illustrates these patterns and the connections among them. The dotted line indicates the different orientation amongst the personal motives: the first three patterns suggest more self-oriented motivations, which include entertainment and self-enrichment, while the last two patterns suggest an orientation to others (i.e., a desire to connect, include, help or change others through own travel experiences). "Explore" is a prevalent theme suggested in the self-oriented tweets, while "Share" is the prevalent theme of other-oriented motivation. These patterns of use indicate potential changes in travel behaviour due to the perceived new ways of interactions afforded by the different functionalities of Glass, including interpersonal interactions and user interactions with near environments. These patterns are elaborated further in the following subsections.

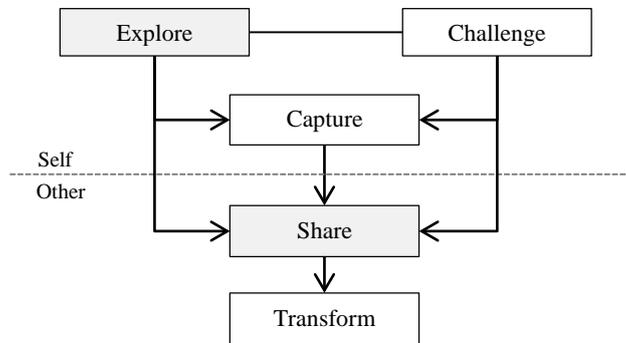


Fig. 2. Motivations to Use *Glass* for Travel Experiences

4.1 Wearable Computing and World Exploration

The first and most prevalent motivation to use *Glass* for travel experiences is the desire to explore different places around the world and to experience new things. The keywords used in tweets under the “Explore” theme are “travel,” “explore,” “trip,” “world,” and specific mentions of a destination. The individuals’ desires to explore the world imply an important shift from the motivation to be a tourist (i.e., to visit a place) to that of being an explorer (i.e., to involve in a deeper exploration of a place, learn different culture, connect with locals, etc.). This is supported by the relationships between “Explore” and other emergent codes within the “Activity” and “Attribute” families. Travel-related activities associated with the motivation to “Explore” are “Culture,” “Biking (Tour),” “Motorcycling (Tour),” “Hiking,” “Road Trip” and “(Sightseeing) Tour.” Additionally, the perceived functionalities of *Glass* that are associated with “Explore” are “Navigation” (including map), “Information” (including augmented reality), and “Translation.” The associated activities and functionalities of *Glass* seem to suggest that people expect *Glass* to facilitate them with new ways of interacting with others and with the environments, which result in a deeper, more meaningful interaction with places (See Excerpt 1;) through enhanced information, instant translation to bridge language barriers with locals, and instant navigation while traveling. Another important suggestion emerging from this theme is the emphasis on the enjoyment of the journey itself (i.e., walking or using personal modes of transportation) instead of a sole focus on destination experience. Many tweets suggest plans to take a road trip or to ride a motorcycle across different states and meet and greet people on the way (See Excerpt 2).

Excerpts 1:

“[If I had *Glass*] I would use it with an AR [Augmented Reality] app to enhance my exploration of European cities. Look at a building, read its history.” – ColinEnglish (February 27, 2013).

“[If I had *Glass*] I would travel around the world without care about unknow[n] languages. **My glasses** could translate for me.” – kikolive (February 27, 2013).

“[If I had *Glass*] [I] Would shoot, record, translate [and] navigate places w[ith] **them** as I travel to create a short film series exploring our world cultures [...]” – mascottlabs (February 27, 2013).

Excerpts 2:

“[If I had Glass] [I would take a] *road trip from Seattle to Chicago for the best slice of pizza in town, and have it direct me to interesting stops along the way [...].*” – Quintious (February 27, 2013).

“[If I had Glass] *I would spend the summer traveling across the country, video interviewing strangers about their lives and their passions...*” – MichaelKovich (February 24, 2013).

“[If I had Glass] *I would travel through Venezuela in my 125cc motorcycle, showing places, the experience and every detail of the trip!*” – jpserranoguada (February 25, 2013).

4.2 Wearable Computing and Adventure Tourism

One of the revolutionary impacts expected from the use of Glass is in adventure tourism as reflected in tweets containing activities such as skydiving, bungee jumping, mountain climbing, parasailing, etc. This motivation to challenge oneself to partake in more adventurous outdoor activities and extreme sports could be inspired from the Glass introduction video published by Google, Inc. containing first-person images captured with Glass. However, it is important to note that the tweets containing the “Challenge” motivation also have extremely high co-occurrences with the desire to share the adventure with others, which is enabled by the new capture and share functions unique to Glass. In other words, while most twitter users indicated the need to challenge themselves to climb Mt. Everest or to skydive, it is the idea that the action could be captured in FPV and shared in real time (i.e., live streaming) that makes the motivation even stronger (see Excerpts 3). In terms of functionalities, the pattern “Challenge” is associated with “FPV,” “Navigation,” “Information,” “Real Time Connectivity,” and “Social Publishing,” which includes blog, vlog, and video streaming.

Excerpts 3:

“[If I had Glass] *I would climb Mt. Kilimanjaro. #bucketlist.*” – Ross_Hagan (February 27, 2013).

“[If I had Glass] *I would snowboard, skydive, take a video on top of one of Colorado's 14ers and go on a road trip across America!*” – OCDelRio2 (February 27, 2013).

“[If I had Glass] *when I go skiing I could take videos instantly of me on the slopes and I could also find my way back with directions if lost...*” – sanjanagoogle (February 24, 2013).

4.3 Wearable Computing and Travel Documentation

A great amount of tweets put an emphasis on documenting travel experiences driven by the convenience offered by the use of wearable computing (i.e., hands-free image capturing without getting in the way of experience) and the capability of capturing point-of-view images (i.e., as an alternative to head-mounted cameras). The pattern has a strong connection with “Share,” implying that personal travel documentation does not only serve the purpose of storing personal memories, but also serves as experience reporting for others (See Excerpts 4). In terms of activities, “Capture” is associated with

outdoor sports and other journey-related activities such as “Biking,” “Skydiving,” “Skiing,” “Hiking,” and “Road Trip.” In terms of perceived functionalities, the pattern is associated with “FPV,” “Social publishing,” and “Real-Time Connectivity.”

Excerpts 4:

“[If I had *Glass*] I’d document [and] share my 110 mile backcountry ski trip through the Alps on the Haute Route this March [...]” – johnharrington (February 26, 2013).
“[If I had *Glass*] a day at the beach could be recorded and saved for a rainy day [...]” – iCandy4yOuXoXO (February 27, 2013).
“[If I had *Glass*] I would record my monthly hiking expeditions from my perspective so I can stream it for nature lovers online! [...]” – JoeGo132 (February 27, 2013).

4.4 Wearable Computing and Travel Reporting

The “Share” motivation has strong connections to all other patterns. The desire to share travel experiences with others can be expanded into distinct sub-themes that indicate deeper personal values: (a) the value of showcasing personal experience and perspective to others (i.e., self-esteem), (b) the value of experiencing things together with others, albeit indirectly (i.e., belonging), and (c) the value of enabling others to experience places and things (i.e., altruism), by opening access to travel experiences for others with limited mobilities (e.g., people with disabilities or other travel restrictions) (See Excerpts 5). “Share” is associated with activities that are captured in adventure and exploration as well as these functionalities: “FPV,” “Real-Time Connection,” “Social Publishing,” “Information,” and “Navigation.”

Excerpts 5:

“[If I had *Glass*] I can finally show others what it feels like to fly from NYC to Thailand by yourself at 19 years old, on a whim.” – thedansper (February 26, 2013).
“[If I had *Glass*] I’d take **them** on my next ski trip to Salt Lake City so my roommate (just lacerated his spleen) can experience the slopes too!” – AustinMcPhilli1 (February 25, 2013).
“[If I had *Glass*] I’d use **it** to stream my next trip to Japan so I can finally bring my disabled father with me.” – rsuttong (February 26, 2013).
“[If I had *Glass*] I would use **it** to take my family and friends to places and experiences they could never reach on their own in their lifetime.” – jessefifer (February 25, 2013).

4.5 Wearable Computing and Positive Transformation

A handful of tweets reflects a personal value that transcends the motivation to travel for enjoyment and self-enrichment, to spreading influence that leads to positive societal transformation. Many twitter users posted ideas of sharing images and experiences to the world to promote mutual understandings and to encourage cross-cultural learning. Others see the ability to travel and to share travel experiences as a way to make a difference; showcasing the kindness they encounter along the way means inspiring others to embrace positive behaviour (See Excerpts 6). The pattern “Transform” is strongly associated with the motivation to “Explore” and “Share,” “Culture” activities, and “FPV” functionalities.

Excerpts 6:

“[If I had Glass] *I'll explore the world. When [I] explore, [I] interact. When [I] interact, I change. [If I had Glass] I [would] make the world to better place.*” – olzas (February 24, 2013).

“[If I had Glass] *I would help change the world by showing everyone all the different countries.*” – kjstog (February 24, 2013).

“[If I had Glass] *I'd share my unique perspective of the world on [website] so people can learn and be inspired by other cultures!*” – citygalKLC (February 27, 2013).

“[If I had Glass] *I would be able to more easily document an around the world bike trip to raise money and awareness for breast cancer research.*” – MontyHendrixson (February 27, 2013).

4.6 Wearable Computing: From Mediation to Embodiment

Based on the five patterns representing different drivers of potential use of Glass for travel and tourism experiences and their associations with travel-related activities and perceived functionalities of Glass, a chain connecting the attributes of Glass to the values held by its potential users is illustrated in Fig. 3. The abstraction level adapted from Means-End Theory assisted in not only identifying Glass attributes that potential users perceived as important for their personal experiences, but also defining the associations between the perceived attributes and user values. Key differentiations of wearable computing technology that potentially transform user behaviour are: (1) instant information and translation, which include overlay and augmented reality as well as location-based data for navigation and directions, (2) hands-free capturing of images with first-person perspectives, and (3) real-time connectivity with social networks. Instant information makes more equipped and informed tourists, stimulates more meaningful interactions, and creates more convenience and confidence for being out in the world (i.e., Glass as an extension of the mind). Eventually, this stimulates the motivation for exploration (e.g., cultural activities, road trips and other journeys). The unique perspectives captured by the face-mounted device generates interests in producing (and sharing) FPV videos and pictures of extreme activities such as bungee jumping and skydiving (i.e., activities that challenge oneself). Lastly, real-time connectivity drives potential users to develop and maintain social connection with others, stimulating the social needs of belonging as well as altruism. Most importantly, the combination of these functionalities (i.e., allowing users to safely explore, capture different perspectives, and simultaneously share) stimulates the will to make a difference in the world.

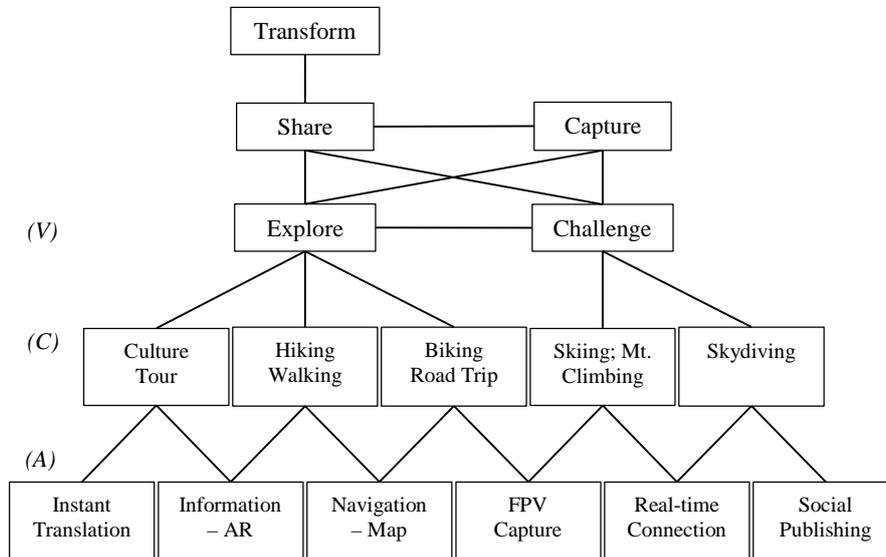


Fig. 3. Abstraction of attributes (A), activities (C) and motivations (V) of *Glass* use for travel

The identified patterns of expected use of *Glass* also suggest different patterns of user – technology interactions as well as patterns of interaction between users and near surroundings. The ways potential users describe the activities related to exploration, for example, suggest that while potential users still view the device as having a mediating role (represented by the explicit mention of using the device for a particular activity), most potential users describe their expectation of use as if the device is becoming a part of themselves or an extension of their bodily and cognitive senses. For example, *tweets* in Excerpts 1 refer to expectation of users turning into the device to help them navigate places or translate foreign languages (i.e., “I will use [*Glass*] to...”). These seem to indicate the process of mediation, where users interact with technology to assist them in interacting with near surroundings. The majority of other *tweets*, however, suggest the idea of a technology withdraw by making references to themselves and the new things they *could* do (e.g., in Excerpts 6). Some *tweets* also suggest the perceived extension to potential users’ sense of the body and the mind (i.e., “Seeing through *Glass* eyes...”), confirming the relevance of technology embodiment in the context of wearable computing.

5 Conclusion and Implication

The aim of this study is to explore the potential use of wearable computing devices for travel and tourism experiences and to identify potential changes in terms of the roles of personal wearable technology in assisting tourists while interacting with others. The conceptual framework in Means-End Theory guided the abstraction of the data to identify perceived functionalities or attributes of *Glass*, consequences of use for different types of travel-related activities, and the drivers of such use. Lastly, the

theoretical framework of technology mediation and embodiment was consulted to define the changing roles of technology in human experiences as it becomes a part and extension of human bodies and cognitive abilities.

Wearable computing encourages exploration of places supported by the connectivity and possibilities to navigate, retrieve, consume and layer information (i.e., with augmented reality) while exploring tourism destinations. Well-informed tourists (with extended cognitive abilities) will be able to roam around the destinations independently, enjoy en-route experiences (e.g., road trips, motorcycle trips, etc.), and explore unfamiliar places. This indicates a shift from “tourists” to “explorers,” which will transform not only the management of destination attractions in terms of tour programming, guiding, and information provision for tourists, but also the emphasis of the many facets of destination experience as well as space-time relevant recommendation systems for marketing purposes. These findings confirm and extend the findings from previous research on the mediation of personal technology in tourism experiences (Tussyadiah & Zach, 2012; Wang, Park, & Fesenmaier, 2013).

Wearable computing encourages the production of first-person visual narratives of personalized travel experiences. This will re-emphasize and give new meanings to word-of-mouth marketing as the abundance of personal travel videos will potentially shape the micro-segmentation approach to destination marketing (i.e., a push to rely more on personas other than traditional methods for segmentation and targeting). These findings reaffirm the importance of first-person narratives in destination marketing (Tussyadiah & Fesenmaier, 2008; Tussyadiah, Park, & Fesenmaier, 2011). Also, wearable computing facilitates social connection through real-time connectivity with family and friends (e.g., using Google+ Hangout simultaneously while consuming tourism destinations) and elimination of cultural barriers between tourists and locals. This will give tourists the feeling of safety and ease of interpretation of tourism attractions and other resources within the destinations.

Despite the contribution to identify potential changes in travel behaviour with the use of wearable computing devices, there are limitations in this study. Due to the nature of data elicitation where twitter users posted the ideas to win a competition, the results should be interpreted as people’s perception of a creative use of Glass. The indication of behavioural changes within these tweets reflect the supposition that the activities suggested were considered revolutionary for them. In order to assist in generalizing the findings, a follow up study exploring the real use of Glass for tourism experience is suggested.

References

- Dickey, M. R. (2013, March). *How Google Glass will Revolutionize 9 Industries*. Retrieved from [http://www.businessinsider.com/google-glass-will-totally-disrupt-these-tktk-industries-2013-3?op=1]
- Ehn, P. & Linde, P. (2004). Embodied interaction: Designing beyond the physical-digital divide. Futureground, *Design Research Society Int. Conf. 2004*. Melbourne: Monash University.
- Farber, D. (2013, March). *Google Glass and the third half of your brain*. Retrieved from [http://news.cnet.com/8301-1023_3-57573966-93/google-glass-and-the-third-half-of-your-brain/]

- Grunert, K. G., Beckmann, S. C. & Sørensen, E. (2001). Means-end chains and laddering: An inventory of problems and an agenda for research. In T. C. Reynolds & J. C. Olson (Eds.), *Understanding Consumer Decision-making: The Means-End Approach to Marketing and Advertising Strategy*, pp. 63-90. Mahwah, NJ: Lawrence Erlbaum.
- Gutman, J. (1982). A means-end chain model based on consumer categorization processes. *Journal of Marketing*, 46(2), 60-72.
- Hatch, J.A. (2002). *Doing qualitative research in educational settings*. Albany: State University of New York Press.
- Ihde, D. (1990). *Technology and the Lifeworld: From Garden to Earth*. Bloomington, IN: Indiana University Press.
- Kassarjian, H. H. (1977). Content Analysis in Consumer Research. *Journal of Consumer Research* 4(1), 8—18.
- Neuhof, B., Buhalis, D., & Ladkin, A., (2012). Conceptualising technology enhanced destination experiences. *Journal of Destination Marketing & Management*, 1(1–2): 36-46.
- Perkins, W. S., & Reynolds, T. J. (1988). The explanatory power of values in judgements: Validation of the means-end perspective. *Advances in Consumer Research*, 15: 122-126.
- Prabu, K. (2012, April). *How Google's Project Glass is going to Revolutionize Travellers and Travel Companies*. Retrieved from [<http://www.travopia.com/2012/04/how-googles-project-glass-is-going-to.html>]
- Reynolds, T. J., & Perkins, W. S. (1987). Cognitive differentiation analysis: a new methodology for assessing the validity of means-end hierarchies. *Advances in Consumer Research*, 14: 109-113.
- Saldana, J. (2009). *The Coding Manual for Qualitative Researchers*. Los Angeles: Sage.
- Tate (2012, May). *Google Glasses (Project Glass): The Future of Human-Computer Interactions?* Retrieved from [<http://usabilitygeek.com/google-glasses-project-glass-the-future-of-human-computer-interaction/>]
- Tussyadiah, I.P. (2012). A Concept of Location-Based Social Network Marketing. *Journal of Travel & Tourism Marketing* 29 (3), 205-220.
- Tussyadiah, I.P. & Fesenmaier, D. R. (2008). Marketing Places through First-Person Stories - An Analysis of Pennsylvania Roadtripper Blog. *Journal of Travel and Tourism Marketing*, 25(3-4), 299-311.
- Tussyadiah, I.P. & Fesenmaier, D. R. (2009). Mediating tourists' experiences - Access to places via shared videos. *Annals of Tourism Research* 36(1), 24-40.
- Tussyadiah, I.P., Fesenmaier, D.R., & Yoo, Y. (2008). Designing Interactions in Tourism Mediascape: Identification of Patterns for Mobile 2.0 Platform. In O'Connor, P., Hopken, W. Gretzel, U. (Eds.), *Information and Communication Technologies in Tourism 2008*. Vienna - New York: Springer.
- Tussyadiah, I.P., Park, S., & Fesenmaier, D. R. (2011). Assessing the Effectiveness of Consumer Narratives for Destination Marketing. *Journal of Hospitality & Tourism Research* 35(1), 64-78.
- Tussyadiah, I.P. & Zach, F. (2012). The role of geo-based technology in place experiences. *Annals of Tourism Research* 39 (2), 780-800.
- Wang D., Park S., & Fesenmaier D.R. (2012). The role of smartphones in mediating the touristic experience. *Journal of Travel Research*, 51 (4), 371-387.