

Making Tourist Experiences Through Personalisable 3D Printed Souvenirs

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Introduction

Souvenirs can be an important element of a tourist experience with most visitors bringing back mementos and souvenirs as evidence (Wilkins 2011). Souvenirs are often thought of as cheap, inauthentic, mass-produced 'commodities'. It can be that this commoditisation exploits local crafts people and alters the meaning of cultural products, eventually making them meaningless (Cohen 1988). On occasion, souvenir products are produced to look like authentic crafts and are sold to tourists as genuine cultural products. (Markwick 2001).

Souvenirs can, however, be 'messengers of meaning' that are symbolic reminders of an event or experience. They can serve as tangible markers of an otherwise intangible and ephemeral experience. 'Souvenirs of essence are intangible recollections, abstract notions of place attachment, enjoyable holiday experiences, and social connectedness. Souvenirs in substance are physical, tangible, material objects that identify place and delineate a singular experience.' (Swanson and Dallen 2012 : 290) This experience can be 'suspended in time' through souvenirs. Bringing a souvenir home validates and prolongs a travel experience, not only as a remembrance but a proof that the owner was there.

This paper explores the concept of the souvenir, not only as a meaningful and expressive object, but also, through in-situ 3D printing technology, as an interactive experience that further adds to the potential authenticity of the tourist experience. In this study, a 3D printer was set up in Stirling Castle, Scotland, and visitors were allowed to interact and 'create' (in this case through choice of material) their own souvenir, which reflected the Historic Scotland's branding. The real time production of the 3D printed objects and the nature of 3D printing, which involves 'risk and certainty' (Pye 1968) added innovative technology and making to a more traditional, immersive tourist experience. 'People seem increasingly keen to develop their creative potential, by enhancing their productive or consumption skills, by following courses or experiencing creativity on holiday' (Richards 2011). The precedents and outcomes from this are explored in this paper.

2. Literature Review 2.1 Souvenirs

Gordon (2004) devised a 'typology' of souvenirs that identifies and describes their 'function'. This includes pictorial images; things saved from the visit – mementoes which are natural, gathered, hunted, or taken from a built environment; 'symbolic shorthand' - manufactured miniatures or oversized objects; 'markers' - souvenirs that in themselves have no reference to a particular place or event but are inscribed with words that locate them in place and time and 'local' products such as local crafts. In Littrell et al.'s research (1993), the product attribute criteria of desirable souvenirs included design, superior quality workmanship and attractive colours. Some tourists were likely to be attracted to souvenirs based on nature, country and traditional themes. Other tourists selected purchases according to cleaning and care requirements, symbolism of the place visited, holiday site, aesthetic and functional qualities of the item. In addition to the different categories of souvenir and their utilitarian function, they can be used reflexively by individuals as touchstones of memory, mediating experiences in time and space in the construction of tourist identities (Morgan and Pritchard 2005). Travellers authenticate meanings through souvenirs and these meanings are fluid, constructed and reconstructed over time and relate to evolving definitions of self. The identity and image of a 'culture', often represented in souvenirs as evidence of history, heritage and geography is also flexible.

Love and Sheldon (1998) describe souvenirs as having the ability to capture, recollect and prove an 'extraordinary' or 'sacred' time or space. 'Sacredness theory' is the temporary shift between normal or profane existence, such as work, and an abnormal or 'sacred' leisure experience. 'Tourism allows individuals to move from the normal, ordinary state to the sacred, extraordinary state. People cannot stay in the sacred state indefinitely; however, they can hold on to a tangible piece of the extraordinary - the souvenir - to remind them of the experience'. (Swanson and Dallen 2012 : 490) Wilkins (2011) uses the term 'strategic memory protection' to describe actions designed to encourage memory of important life events, with souvenirs being an example of a physical object intended to protect the memory of important life events, such as holidays.

Consumers reflexively use souvenirs after the original travel experience to create and recreate tourism experiences. According to Swanson and Dallen (2012), when an object purchased as a souvenir from a leisure experience is remarked on, the narrative of the experience may be shared, enhanced and even re-lived. The treasured object is not an ordinary item but a memento of an event or experience with heightened meaning and symbolic transcendence. The souvenir therefore becomes greater than its material form, representing the whole of the experience (Morgan and Pritchard 2005). The souvenir represents the owner's effort to make sense of their visit inside the person's experience at the time of acquisition and after the experience as a symbol (Swanson and Dallen 2012).

The souvenir can function as an expression of a person's individuality and sense of self, group conformity, creativity and aesthetic taste (Littrell 1993) 'Visual images, symbols, representations and markers of 'having been there' are especially salient as keepsakes for the home, as they not only stir memories of unique places but they embody, to some degree, the image of place that souvenir producers desire to depict to outsiders.' (Swanson and Dallen 2012) In Littrell's research (1993), it is said that tourists use souvenirs to 'differentiate themselves from others, build relationships, strengthen self-confidence, remember and reminisce, express creativity, and engage in hedonic or aesthetic pleasures'. Tourists gain prestige through the purchase of 'ethnic' artefacts since there is a cachet connected with international travel, exploration and multiculturalism.

Swanson and Dallen (2012) found that tourists are more willing to spend money on souvenirs if the displays are of high quality, imaginative and attractive. Salespeople should 'take the time to explain the item's value, relate its history.' Littrel (1993) said that tourists would select purchases particularly by artisans who signed their works and/or artisans who had been observed creating their works.

2.2 Craft and Tourism

'Creative Tourism' is being defined as a transformation of traditional cultural tourism towards greater involvement with the everyday life of the destination offering more flexible and authentic experiences, which can be co-created between the host and the tourist (Richards 2011). In addition to this According to Gretzel and Jamal (2009) creative tourism involves 'creative clusters' - the creative person, the creative process, creative products and creative environments. He cites examples being travel related to famous 'artists' and designed creative activities such as workshops and master classes. The 'creative class' and visitors appear to be increasingly keen to develop their creative potential by following courses or experiencing creativity on holiday (Richards 2011). Developing practices of production and consumption are at the forefront of the creative tourism, with a symbiotic relationship between a productive drive towards developing new experiences and consumer desires for new sources of experience and distinction. The rise of creative tourism can be linked to the development of the 'experience economy' (Pine and Gilmore 1999), in which growing competition arguably leads producers to add value to services by developing 'experiences'. According to Richards (2011), the success of creative tourism involves a dissatisfaction with contemporary modes of consumption; blurred boundaries between work and leisure (serious leisure, work as play, lifestyle entrepreneurship); increased desire for self-development and skilled consumption; experience hunger of postmodern consumers; building narrative, biography and identity and attractiveness of creativity as a form of expression.

Individuals often identify 'crafts' and other objects purchased during a holiday as their most valued possessions. Markwick (2001) identifies that tourist craft industries use of relatively simple tools, without involving large economies of scale, but because of this flexibility, products can be variously fashioned to suit diverse and individual tastes. Although output is low and production costs relatively high, the products find a market if their distinctiveness justifies higher prices in the view of prospective buyers. Although some of the crafts offered to tourists can possibly be bought at home, the object acquired has greater symbolic meaning and social value because of the context in which it was produced.

It is the perceived authenticity of craft products which renders them attractive to the tourist market, particularly if production skills can be observed and products purchased in the places where they are made. (Swarbrooke and Horner, 1999) Customers make souvenir purchase decisions based on the composite value they attach to various product attributes, including the processes and locations involved in their creation (Swanson and Dallen 2012).

2.3 Individuality and Personalised Experience

In addition to opportunities for differentiation from or integration with others, souvenirs objects can define self-concepts, enhancing self-confidence, and express self-concept to others (Brown and Turley 1997). These objects can have different meanings and purposes over time (McCracken 1988). Souvenir objects can mediate emotions, relationships and identities. (Attfield 2000) said that consumers have a variety of roles which they reflect and affirm in their consumption choices and that they have a repertoire of self-images from which they choose to reflect their desired selves. Morgan and Pritchard (2005) say that contemporary consumers are 'marketing literate, knowledgeable, discriminating and self-aware' and interpret and manipulate the signs and symbols of consumption, creating their own 'material terrains where consumption defines self'. Symbolic consumption can add to our idealised self and can be outwardly social - how we wish to communicate ourselves to others. Barwise et al. (2000) say that the symbolic meanings of objects are balanced between similarity (cultural integrity) and differentiation (individuality). Stewart (1993) said that the souvenir is a narrative of its owner because of its connections to biography and its place in constituting the notion of the individual life.

Brown and Turley (1997) suggests that experiences are often considered as possessions that require a marker signifying ownership. Moran and Pritchard (2005) say that our identities can be expressed through our lifestyles, and while some of us draw our identities from community and shared bonds, others seek to define themselves through individuality and difference. We develop a sense of personal identity, both as an individual and as a member of a group, not only from our gender and race, but also through the process of negotiating and creating our own material worlds. Chaney (1996) said that people gain and express their identity through the appropriation and consumption of products as the material of symbolic practices and as mediators of a sense of being in their own time and place in a social and cultural context.

2.4 Digital Craft

3D printed souvenirs that reflect aspects of their surroundings, either through the use of scanning technology or modelled using computer aided design tools, can be considered to be 'copies' rather than traditionally crafted objects with the embedded skill and emotion of the maker. In Smith and Robinson's research (2006), this view is shown to be 'Western' in conception. They say that some non-Western languages do not have a word for 'copy' and, for example, Javanese language uses the term 'son of' to differentiate between a 'remake' and original. There is also no less value attached to a 'copy' if the quality is good. The 'authenticity' of the object, therefore, is more linked to the assurances given by the vendor, experts and institutions. The meaning and value of the 'copy' object is a personal construction and tourists are active creators of meaning rather than passive consumers, where the 'meaning' is more closely linked with the 'traditional' craftsman's intentions. Participative, creative collaboration in the making of tourist experiences can therefore be enhanced by the use of digital making technologies such as 3D printing. Interaction with the technology, the individuals involved in their operation and the objects produced, appears to allow a more active rather than passive form of consumption than buying traditionally crafted souvenirs. In Richard's research (2011 : 1230) this emphasises 'living' and 'intangible', rather than static cultural heritage. 'The essence of creative tourism seems to lie in activities and experiences related to self-realization and self-expression whereby tourists become co-performers and co-creators as they develop their creative skills.'

With the rise in interest in digital making, with Fab Labs, open source software and 'DIY' makers, digital craft projects that allow creative participation with the tourist may reflect the actual character of a destination more than experiencing 'traditional' craft production. While certain destinations may have a creative 'tradition', every location, providing digital crafting projects, has the potential to provide a unique combination of knowledge, skills, physical assets, social capital and innovative 'atmosphere' (Richards 2011). 'Creative tourism' can also be shown to grow up around specific events in particular locations, such as the Edinburgh Festival. (Prentice and Anderson 2003).

3. Methodology

The initial study took place in collaboration with Historic Scotland, in Stirling Castle, producing 3D printed souvenirs of visits to the Castle in July and August 2014. The souvenirs were produced in a variety of materials and scales and were formed on an 'Ultimaker 2' portable 3D printer that was set up within the castle next to one of the halls that formed part of a tour. The researchers invited visitors to take part and then offered them a 3D printed item at the end of the short survey (a unicorn to reflect the castle's branding).



Figure 1. Stirling Castle



Figure 2. 3D printed unicorn 'give-aways'



Figure 3. Location of display and survey at Stirling Castle

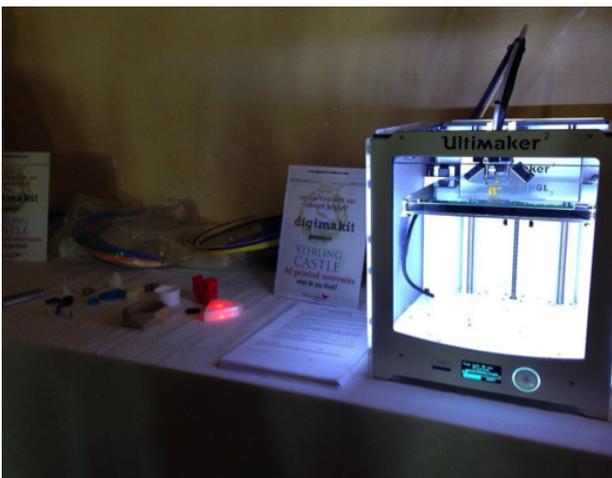


Figure 4. Handling station at Stirling Castle

A pilot survey took place in situ to demonstrate the technology and processes involved with 3D printing and to engage the public and staff with the design process of manufacturing a souvenir from start to finish using these technologies. In total, 139 short surveys were completed on location over the course of four days and responses were also audio recorded to check for accuracy. The printer was set up so that participants could see and hear the items being printed whilst they were being interviewed. After the completion of the data collection process, the researchers also noted their observations of the visitors' engagement with the objects and their interactions with the printer in - situ.

The participant sample achieved consisted of 75 females and 64 males. Respondents came from the UK (31 per cent), with the USA (19 per cent), Spain, Canada, France and Australia (6 per cent) being the most popular. 90 per cent of the participants had heard of 3D printing before through public media. Some respondents had used 3D printers in their school or had a museum/festival science experience with the printers. Only two respondents owned a 3D printer and one was a prospective 3D printer buyer. A number of participants stressed that although they had heard of 3D printing, this was the first time they were seeing a 3D printer in action. The findings were synthesized to include respondents' comments and the researchers' personal reflections of the visitor engagement with 3D printing in situ.

4. Primary Research Results

4.1 Pricing of 3D Printed Souvenirs

The participants were asked about how much they would be willing to pay for the souvenirs with the attributes outlined in the study. Most said they would pay more than for a standard souvenir, particularly if there was the opportunity to either customise or interact with the designing and making process.

“Seeing it being printed - watching it in action with the software expert, and a demonstration of what’s happening becomes part of the experience” (Female, USA).

“Difference is its made in front of you - not made in China” (Male, USA).

“I think it would work for people like me who are a bit geeky. The process as well I’m interested in. I would say definitely for me its important to see it in action” (Male, UK).

“It’s really clever, especially if you can see the items printed in front of you. Its so much cooler than those little coin machines” (Male, USA).

“I think it’s a great idea, so you can say this is from here, and show people and see it being done” (Female, USA).

“See it happening makes it more significant, personalise it would be great, interactive process makes it more interesting, like a pressed coin” (Female, Australia).

“Fascinated by it, really neat idea. I saw that you were making it” (Female, USA).

4.3 In-situ 3D Printed Souvenirs

Based on the observations and feedback from setting up the 3D printer and giving away the souvenirs, the researchers felt that the small memento of the visit had more meaning to the visitors than mere sentimentality. The immediacy of the experience was also one of the key attractions. This offered the recipient of the souvenir/memento a chance to have ownership and involvement suggesting that the process added to the memory of the visit.

“Yes perhaps, I think maybe printing what you take a picture of, and location and date. I tend to buy useful souvenirs with a purpose like a tea towel or socks” (Female, Brazil).

“Yeah I was here where my sister was born in Stirling, one of the statues or something printed to take back” (Female, Australia).

“It would be fun, maybe on a ring, time is always a concern. Do it at start, pick it up when you leave maybe”? (Male, USA).

“I like the date and time on the bangle, I think if you put it on the jewellery its more sentimental. Its the type of thing you buy as a gift” (Female, UK).

“I can have anything I want? My moments of Stirling castle today? Because when anyone comes here, its what it means to them” (Female, UK).

“Yes I like this, because it’s a memory” (Female, China).

4.4 Emotional Engagement with 3D Printed Souvenirs

The low cost, mass produced, inauthentic reputation often associated with souvenirs is challenged through the process of 3D printing. Although the object is still mass-produced, it is authentic to the individual and unique as it was printed for that person. The emotional engagement with the souvenir produced was higher. There was also a higher intrinsic value because of the personal engagement with the souvenir being formed. In addition to this, 3D printing seems to give the satisfaction of crafting without the user requiring the full craft experience, which would be more demanding in terms of skill and time.

“A good idea, I like the idea of scanning items and making what you like” (Male, UK).

“I don’t know, I think it would be cool to make a ring or something like Jewellery. It wouldn’t be easy but it would be cool to see how it turned out” (Female, Canada).

“There’s as many options as there are ideas. What you see when you go into a gift shop, you’ve seen before. This is 3D it gives it more realism, its tangible and I like the fact you can personalise it” (Male, UK).

“Its insane, its awesome, absolutely incredible. I’ve seen stuff like this is necklace form, it’s so cool. I can feel the ridges, I guess its how it’s done... Being able to create something sounds cool” (Female, USA).

5. Conclusions

Souvenirs can possess and convey meaning, linked to the collective system in which the individuals who purchase and own them live. This meaning is flexible and can evolve and change, with objects becoming symbolically significant to their owners. Souvenirs acquired under positive conditions have the potential for developing deeper, multidimensional meaning for their possessor. Souvenirs have the ability to extend and remind the owner of a pleasurable, authentic experience that can move them from mundane daily routines to an emotional state that is out of the ordinary. There is also a relationship between the owner's individuality and heightened sense of self, enabled through the souvenir, combined with more collective memories of meeting new people, including fellow travellers, craftsmen, and sellers.

For many tourists, it has been shown that unusual and authentic shopping experiences provide significant memories from which the souvenir's meaning has evolved. 'Creative tourism', where the visitor may be more involved in the processes of creation and consumption, rather than 'cultural tourism', where they may have merely 'observed', appears to be part of a paradigm shift. This form of creative tourism is co-created and negotiated 'in situ' by the host and the tourist, each playing a role as the originator of the experience. This interaction can lead to an enhanced, more authentic engagement with the souvenir object itself and the destination and site where the object was created. The experience itself becomes like a possession and an immaterial expression of our 'self'.

3D printed 'souvenirs', particularly the ones created for this project, could be described as 'copies' of crafted objects rather than craft objects in themselves (although there was some 'serendipity' in the success of the processes, with the public experiencing this). However, it seemed to be that the experience and visitor interaction with the technology gave the 3D printed souvenir objects 'authenticity' rather than the craft skill embedded in traditionally made objects. Souvenirs and experiences can be conceived as being authentic when they reflect the perceived core values of the visited destination. It can be that tourists conceive their own cultural environment as inauthentic and they increasingly look for authenticity elsewhere, such as with heritage or observing hand crafting. 3D printed, personalisable souvenir production 'in situ' appears to tap into the visitors' desire for authentic fulfilment.

The objects uniquely and flexibly reflect the heritage surroundings and location. As the 3D printer is 'staffed', it allows the visitor to experience digitally skilled, interactive making. The object and experiences are not standard and can change from minute to minute, day to day, adding to the exclusivity, while remaining constantly location and process specific.

While the study did not reveal the participant's engagement with the 3D printed souvenirs after they were taken home and potentially used or displayed, the secondary and primary research suggests that their engagement with such objects may be enhanced. Participants said they would pay more for personalised, co-created items, the experience of interacting with and seeing the 3D printer in situ seemed to improve their visitor experience and that they were 'more engaged' with the object than they would have been without the immersive encounter. Added engagement to souvenir objects, new ways of experiencing making and challenges to traditional ways of retailing made objects have implications for, not only practices in heritage and tourism, but for more wide ranging concerns relating to education, markets and sustainability. It is anticipated that this research will go on to explore these themes more fully.

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