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A study of the relationship between personalised 3D printed 'Souvenirs of Place' and public perception of modern architectural heritage.

Samantha Vettese[a], Constantia Anastasiadou[a], Kathy Vones[a]

[a]Edinburgh Napier University

Abstract At present, there is a disconnection between academic and public perception of Modern heritage, particularly Brutalist architecture. This research utilises the processes and experiences of making 3D printed 'souvenirs of place' to investigate their potential applications with regards to Modern 'overlooked' heritage. This project develops from the concept that souvenirs are not just commercially produced 'keepsakes' with a purely utilitarian value. Souvenirs can be tangible reminders of special moments and events which locate and define a fleeting, transitory experience, can mediate experiences in time and space with the ability to give ordinary experience something of the quality of an extraordinary experience. The souvenirs of this project will help participants consider the buildings as more than 'architectural artworks' or the materials or architectural details, which they may not fully understand or appreciate, but as 'holistically' beautiful in terms of people and memories.

Keywords: brutalism, heritage, engagement, 3d printing, souvenir

1. Introduction

At present, there is a disconnection between academic and public perception of Modern heritage, particularly Brutalist architecture. Dyckhoff (2011) said, 'Brutalism is most threatened of all precisely because you have to appreciate its muscular architectural qualities rather than a picturesque aesthetic.' Many authorities include twentieth century buildings in their listing programmes, but there remains apprehension about protecting anything but the most wellpreserved icons of the Modern era. While privately funded estates such as the Barbican Centre in London are a success story, much of Britain's iconic Brutalist architectural heritage is facing the growing threat of demolition on the back of planned urban redevelopment and reinvigoration schemes. In many areas, twentieth-century structures overshadow the landscape and for a large segment of the public, they represent a living, negative memory. While issues of permanent neglect, decay and criminal activity that often surround such estates dominate the conversation, their undeniable architectural merits are often overlooked, and the positive memories attached to them are erased. This challenge is

highlighted in the recent 'immunity from listing' verdict delivered with regards to Robin Hood Gardens in Tower Hamlets in London, and the looming demolition of Birmingham City Library. The Twentieth Century Society, which aims to safeguard the heritage and architecture of British architecture from 1914 onwards (Twentieth Century Society, undated) said of this, 'we deeply the regret the fact that Historic England once again recommended that the housing estate should not be listed – despite the Twentieth Century Society presenting an extremely strong case, and a last minute rallying of support from leading architects and academics' (Twentieth Century Society, 2015). However, in the face of a growing architectural awareness of the daring sculptural features celebrated by Brutalism, the scope for creating objects that represent a souvenir of the living memory, reflecting the holistic perception of 'place', of such architecture for future generations is created.

This emergent research proposes to utilise the processes and experiences of designing and making 3D printed 'souvenirs of place', with regards to Modern 'overlooked' heritage. The public will be asked to interact with 3D modelling technology, to personalise a pre-designed architectural model base plate, incorporating self-originated photographic material. Participants will then be supplied with miniature 3D printed architectural building blocks, used in conjunction with the base plate to assemble a unique 'souvenir of time and place'. Responses to the realisation of the completed objects and the visitors' subsequent engagement with the sites will be investigated, through observational research methods.

This project develops from the concept that souvenirs are not just commercially produced 'keepsakes' with a purely utilitarian value. Souvenirs can be tangible reminders of special moments and events which locate and define a fleeting, transitory experience, can mediate experiences in time and space with the ability to give ordinary experience something of the quality of an extraordinary experience. They can be 'touchstones' of memory, travel markers reflecting cultural heritage of local place, social historical and political signifiers of community memory.

The souvenirs of this project will help participants consider the buildings as more than 'architectural artworks' or the materials or architectural details, which they may not fully understand or appreciate, but as 'holistically' beautiful in terms of people and memories. In addition to this, the process of personalising and printing out one's own souvenir on site adds potential for participation, interactivity and further engagement and added value to the visual and cultural heritage of the site. This process embeds the visitor's individuality and 'self' within the experience, object and place. It is anticipated that this memento will add to the highly personal nature of the bond between the individual, the object and the place by formulating an 'autobiographical' element. The project from which this research originated, funded by AHRC and undertaken in Stirling Castle in collaboration with Historic Scotland, explores not only the 3D printed souvenir objects which reflect the built heritage environment, but also particular aspects of the 3D printing and making technology. Visitors could see their object being made in real time and choose materials and scales. They could also experience the 'glitches' and imperfections of the 3D printing process. 3D printing offered a unique combination of controllability and the serendipity of 'craft' which provided a memorable experience for the visitor, in an environment where tourists were already experiencing the built environment in a more traditional way.

2. Research Background

2.1 Perception of Brutalism

Brutalism is a style of architecture with its name derived from 'beton brut' meaning 'raw concrete'. The Brutalist style places emphasis on materials, textures and sculptural, monumental shapes. The Royal Institute of British Architects (2015) describes the attributes of Brutalism as being 'rough unfinished surfaces, unusual shapes, heavy-looking materials, massive forms and small windows in relation to the other parts.' The first example of this style of architecture is thought to be Le Corbusier's Unite d'Habitation in Marseilles, completed in 1952. This comprised twelve storeys of apartments accessed from interior 'streets', topped by a roof terrace and built from roughly cast concrete. According to Hopkins, (2014) Brutalism as a 'movement' 'emerged in the 1950s through dissatisfaction with existing forms of Modernism, from which it aimed to make a conscious departure while at the same time recapturing its original heroic spirit'.

As a style of architecture, Brutalism has been used to give municipal civic identity to major pieces of infrastructure such as churches, bus stations and shopping centres. The most well known, and often criticised use of the Brutalist style is 'social housing' schemes. Despite the frequent lumping together of post-war social housing, Brutalist buildings always seem to attract particularly harsh criticism. This architecture epitomised the 'golden era' of the 1960s became widely reviled and frequently demolished while still being 'useable'. The destruction of Britain's Brutalist legacy could be interpreted as to be an attempt to erase 'utopian' socialist housing policy from collective memory. Grimley et al (2014) stated, 'Several generations of Scots were educated, housed and worked in modernist buildings that have been demolished - how is our memory and sense of the present affected when we demolish our past? What is the balance between opinion and critical analysis when we assess buildings? Some spatial forms are more enjoyable than others – but how much can we dissociate architecture from the social reality of its existence? Has architecture ever cured a social ill?'

Coleman (1985) asserted that that bad (social housing) design causes antisocial behaviour. Till (2013) pointed out that Margaret Thatcher's government took up Coleman's ideas because 'not only did they dissociate symptoms of urban decay from societal causes (poverty, social division, collapse of public infrastructure) but they then tied them in with the failures of the era of state housing, and so by association with the failure of socialism'.

While there appears to be a dissociation in perception between architects, academics, inhabitants and the general public, Brutalist buildings are still considered as sculptural art pieces. However, this 'architecture as art' 'settled into the city and became the stage set for millions of ordinary lives' (Beanland, 2016: 11). It is this dichotomy that makes Brutalist architecture worthy of consideration, particularly in the relationships between inhabitants and visitors. Calder (2016: 53) called Brutalist architecture 'monuments to the people'. This study proposes to interact with the residents to consider whether the devices of digital craft, making and personalised souvenirs can influence this relationship and what it means for them.

2.2 Architectural Heritage and Visitor Experience

Previous research has touched upon the important relationship between heritage buildings and visitor experiences. 'Architourism' is one of the latest global tourism trends (Lasanky, 2004), whereby

people are significantly compelled to visit a destination because of its architecture. Indeed, through architecture, a wide range of personal emotions can be evoked (Küller, 1980) and the experiences attached to heritage assets, such as buildings, can significantly help a region differentiate itself (Howard, 2000).

Visitors gain distinct experiences by interacting with different types of heritage buildings. Previous studies examined the relationship visitors have with a wide range of heritage buildings including those of religious (Munsters, 1996; Rinschede, 1992), historical (Griffiths, 2000), stately (MacDonald, 2013) and commercial (McIntosh & Siggs, 2005) significance. According to Wilson and McIntosh (2008), a focus on visitor experiences can illuminate differences between how visitors engage with a building, and this can have implications for the management of certain types of heritage structures. It can also yield important information for the evaluation of heritage buildings in the wider townscape.

 Wilson and McIntosh (2008) argued that an increased understanding of the experiential relationship between heritage buildings and tourism is essential in strengthening support for their preservation, for product development and promotion. In their study, they found that a tourism townscape is not a passive space. Heritage buildings render the townscape an experiential space filled with emotion, mindfulness, engagement and personal meaning. Experiential tourism is moving consumption away from 'the tourist gaze' (Urry, 1990: 219), as tourists are increasingly concerned with 'not just being "there", but with participating, learning and experiencing the "there" they visit' (Wilson and McIntosh, 2008).

The built environment is also of considerable importance to the 'experiencescape' of tourist destinations. O'Dell (2005: 16) argues that spaces in which experiences are created and consumed, such as destinations, can be termed 'experiencescapes'. These can be viewed as landscaped spaces which elicit the notion that every environment encountered by tourists takes the form of 'physical, as well as imagined landscapes for experience'.

Consequently, within architectural realms, the preferences of increasing numbers of tourists and how their demands may be changing must be understood (Greenwood, 2004). Allsopp (1974) purports that it is people's description of how architecture affects their senses that should be of paramount importance to all interested stakeholders in architecture, heritage, urban planning and tourism. If this is to be achieved, it is important to understand the specific attributes of buildings that are attractive to visitors. 'Is it the sheer brilliance of the architect, the urban location, or something else?' (Greenwood, 2004: 18).

2.3 Souvenirs of Place

For the purposes of this research, 'souvenir' has been defined in the context of 'place' and as something different from a 'memento' which are 'individually saved, non purchased objects that have personal meaning' (Gordon, 2004: 135). Swanson and Timothy (2012: 490) defined the souvenir as 'an object through which something is remembered' and as 'tangible symbolic reminders of an event or experience'. Souvenirs in relation to place act as messengers of meaning and are tradable commodities. For Goss (2004), souvenirs are

'material and mental' and of 'substance and essence' whereas van den Hoven and Eggen

(2008) focused specifically on the souvenirs' 'memory cueing' characteristics, describing them as objects that symbolise a relation between people, moments, feelings, phases, locations and

situations; things which have emotional value and things with which someone can consciously evoke memories.

Gordon (2004: 135) claimed that 'the universality of the souvenir can be understood in light of its underlying role or function as an actual object that makes tangible what was otherwise only an intangible state. Its physical presence helps locate, define and freeze in time a fleeting, transitory experience and bring back into ordinary experience something of the quality of an extraordinary experience.' By providing a material point of reference for a specific memory, souvenirs create, recreate and mediate a multi-sense tourist experience (Morgan & Pritchard, 2005) and are a means of mediating or transferring messages from one reality to another (Mc Kercher and du Cros, 2002; Collins-Kreiner and Zins, 2011: 19). The object acts, foremost, as a memory holder for the person, but is more than a mere reminder. The souvenir also expresses a person's individuality and sense of self, group conformity, creativity and aesthetic taste (Anderson & Littrell, 1996; Fairhurst, Costello, & Holmes, 2007; Littrell, 1990; Littrell et al., 1994).

A less researched issue in most souvenirs discourses is the salience of place (Swanson and Timothy, 2012). Harrison (2003) considered the profound effect place has on tourists and the souvenirs they bring home to capture that sense of place. However, Swanson and Timothy (2012), suggested that little is known about the conveyance of place meaning and the gelling of place attachment through souvenir production and consumption.

2.4 Contemporary Souvenirs of 'Not Yet Loved' Architectural Heritage

Souvenirs of architectural heritage such as Brutalist buildings and examples of 'not yet loved' heritage can be problematic in their translation into a souvenir artefact. However Timothy and Boyd (2006), say that there are growing numbers of visitors who do not want to see 'sanitised and idealised pasts' or 'pieces of the past that emphasise positive events and people and exclude the elements that are unpleasant and socially unacceptable.'. They also talk about the rising interest in 'authentic' 'Thanatourism' which reflects 'a desire to visit places of human suffering' and the 'heritage of the ordinary'. While these appear to be 'new perspectives' in heritage tourism, souvenirs that convey this type of authenticity would not have 'mass appeal'.

There have been souvenir projects that explore more unconventional aspects of architectural heritage. Constantin Boym's souvenirs look at 'buildings that do not exist' and ''buildings of disaster'. For the 'replicas of famous buildings that did not exist', 'these structures may have been destroyed or even may never even have been built, such as visionary architecture that often exerts a profound cultural influence. When a souvenir referent does not exist, a small replica assumes a new and different meaning' (Boym and Hall, 2002: 74). Examples of the bronze cast souvenirs include the Palace of the Soviets statue of Lenin, built in 1932 and pulled down in 1956; Vladimir Tatlin's Monument to the Third International, conceived in 1919 and never fully realised and Joseph Paxton's Crystal Palace, destroyed in a fire in 1936.

Of the 'Buildings of Disaster' (including the site of the Oklahoma City Bombing, the Texas School Book Depository and Chernobyl), Boym and Hall (2002: 76) said 'these monuments enter the collective memory when tragic or terrible events take place inside or around their walls. Some of these buildings may have been prized architectural landmarks – others nondescript anonymous structures. The images of burning or exploding buildings make a different populist history of architecture, one based on emotional involvement rather than scholarly appreciation'.

Figure 1. Konstantin Boym 'Missing Monument', 2002

Figure 2. Konstantin Boym 'Buildings of Disaster', 2002

In 2011 Laurent Kronental started his 'Souvenir d'un Futur' series of photographic studies, showing 'Grande Ensembles' around Paris, contrasted, often, with its elderly inhabitants. These huge housing estates were built primarily in the 1950s and 60s to address urban migration and are often 'stigmatized by the media and marginalised by public opinion' (Kronental, 2011). Kronental said 'exposing these unsung and underestimated suburban areas is a means to reveal the poetry of ageing environments slowly vanishing and with them the memory of Modernist utopia.'

Figure 3. Laurent Kronental, Souvenir d'un Futur, 2011

Other projects approach non traditional architecture as inspiration for souvenir artefacts in more decorative ways, including work by People Will Always Need Plates, Zupagrafika, Chisel and Mouse, Monokraum and Paper Tango.

To coincide with the 'controversial' Preston Bus Station's grade II listing in Preston, UK in 2013, the Visitor Information Centre introduced a range of bus-station-themed souvenirs including post cards, fridge magnets and mugs. Preston Council leader, Peter Rankin, said: 'well, I've always said that we need to make the bus station pay and this might be a start! Credit to our Visitor Information Centre for spotting a gap in the market and responding to demand. It's very entrepreneurial of them. Now the building is listed we might need to extend the range – although we've still got to make a decision about what happens with the bus station in the future.'

Figure 4. Souvenirs of Preston Bus Station, 2013

Hector Serrano's souvenir project questions the relationship between the traditional souvenir and 'place' in a different way, utilising 3D printing technology. He created 'a collection of souvenirs that can be send by e-mail and then materialize using a 3D Printer. No transport or standard production methods are required so the object carbon footprint is reduced to the minimum. The project questioned the way objects are manufactured and new technologies are applied to propose alternatives ways of reducing their impact on the environment. Serrano's project [will] become especially relevant as 3D printers are getting smaller and more affordable. In the near future this technology will be as accessible as standard ink-jet, so objects could be printed from our homes.' (Serrano, 2007)

Figure 5. Hector Serrano, 'Reduced Carbon Footprint Souvenirs', 2007

Our project seeks to extend the premise of authenticity, looking at places of 'ordinary heritage' and marginalised areas by creating souvenirs, utilising 3D printing technology so that participants cannot only see their surroundings in different ways but also personalise their experience.

2.5 Digital Making

Making is known to be pleasurable experience. According to Dissanayake (1999) 'there is something important, even urgent, to be said about the sheer enjoyment of making something exist that didn't exist before, of using one's own agency, dexterity, feelings and judgement to mould, form, touch, hold and craft physical materials, apart from anticipating the fact of its eventual beauty, uniqueness or usefulness.' Ingold (2004) states that 'craft is a perspective that acknowledges that building and making constitute a material way of knowing, learning and acting within the world. Knowledge comes not just in the planning but in the doing. The material presents a particular set of options and the crafter responds and back and forth it goes.' The process and technique of craft and the 'unity of head and hand' 'establish a repertoire of learned gestures. The gestures can be further refined or revised within the rhythmic process that occurs in, and sustains, practicing. Prehension presides over each technical step, and each step is full of ethical implications' (Sennett, 2008: 178).

The concept of making and craft as 'leisure' with embedded opportunities for self reflection and learning, stem from the Greek definition of *'schole'*, meaning both 'leisure' and developing into the contemporary word 'school'. The pure definition of schole, according to Klieber (1999: 1), 'reflects a

freedom from obligation and attention to the refinement of human character.' This is mirrored by Scruton who said 'leisure is not the cessation of work but work of another kind, work restored to its human meaning, as a celebration and a festival' (1998: 14). Schole has developed into 'alternative' educational systems, including WaldorfSteiner, who place emphasis on 'the importance of the sensory system, imagination and refinement of sensibilities' over 'generic thinking skills interventions/ programmes' (Oberski, 2006: 336).

Digital making, particularly 3D printing, engages the maker in a number of ways that differ from 'pure' hand craft or that which has been uniformly 'manufactured' by machine (Rotman, 2013). Pye (1968: 4) defines 'the workmanship of risk' as 'workmanship using any kind of technique or apparatus, in which the quality of the result is not predetermined'. The 'workmanship of certainty' is that 'always to be found in quantity production. The quality of the result is always predetermined before a single saleable thing is made.' It could be argued that 3D printing combines the best attributes of risk and certainty. According to Gershenfeld (2012: 57-58), digital fabrication desegregates 'hard and software and physical science from computer science.

The core theme of our research on digital fabrication is not about computers controlling tools, but about the computer itself as a tool. And it's not about programs describing things, but about things actually becoming programs – about putting codes into materials'.

3. Preliminary Research Design

The research team will evaluate whether, through the publics' interaction with a technologically innovative designed object that they have co-created utilising their own highly personal memories, their perception of the surrounding brutalist architecture is more positive, neutral or negative. These findings have relevance, not only in the context of the specific venues chosen, but also for global locations, where non-traditional buildings may be perceived differently by locals and visitors and where celebration, through interactive souvenir design may have positive consequences.

Through playful, interactive group workshops, with detailed block-pieces of the architecture it represents, the participants are able to more fully understand the buildings past, how it may enrich the present and be of value to future generations. The aesthetic value of the buildings will be disseminated through a detailed interactive study of the form, scale, colour, texture, design and material of the buildings. Using CAD technology, a member of the research team will create sets of building blocks consisting of basic geometric elements and more detailed facade pieces, all of which will be based on prominent architectural features of the chosen locations. These building blocks were 3D-printed using the team's Ultimaker II. Participants from the local community and visitors to the selected brutalist site(s) will use these blocks to assemble their own 'souvenir of place and time' that is a representation of the iconic architecture.
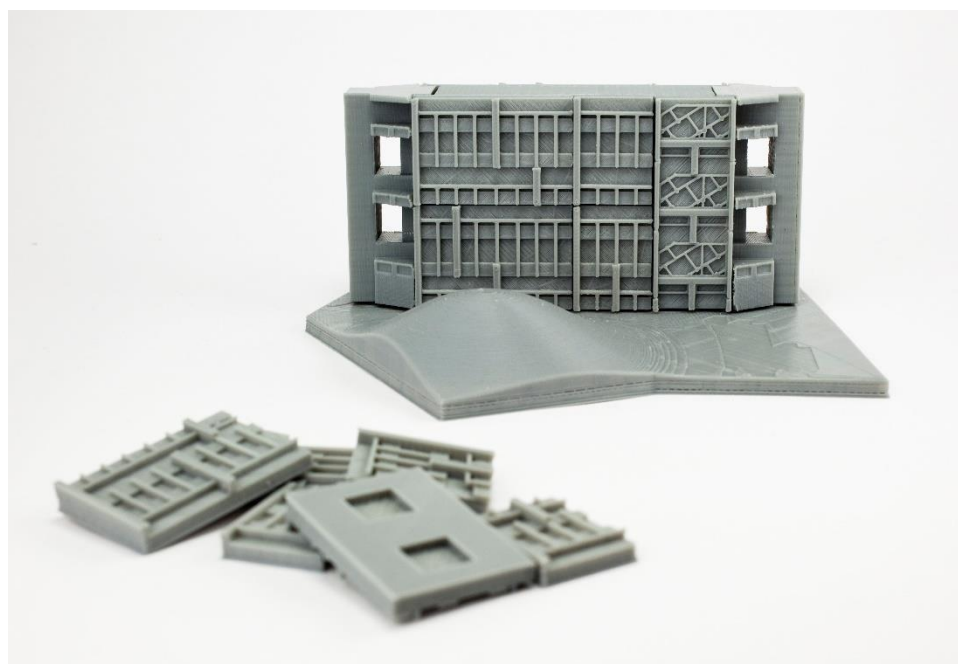
Figure 6. 3D printed modular model of 'Robin Hood Gardens' by Kathy Vones

Participants will also be encouraged to use personal photographs of themselves. These photographs will then be printed on a transfer medium, and provided to participants to further customise their 3D-printed, self-assembled souvenir. In this way, their representation of site, personal memento of 'self' and experiential interaction with the making processes will come together, building individual authenticity within the process. Through the utilisation of participants' personal photographs, the project encompasses actions and events of the site's historical figures, such as the original 'iconic' architects of the buildings, particular historic events, phases and activities that took place there.

Participants will be able to talk to and co-design their souvenir with the research team, choose materials and scale and then have their souvenir printed out. They will then be interviewed about their experience of participation in the making process and the significance of the personally created souvenir. The research team will record responses and remarks as

interview and photographic data, following ethical protocols regarding the recording, reporting and storage of such data. This will be undertaken using participant observation methods, interviews and visual content analysis of the artefact outcomes.

Conclusions

3D printing allows the public to interact with and immediately create their own objects in a way that cannot be done through more traditional manufacturing methods. 3D Printing has virtually no waste, uses little power and does not need to produce individual items in bulk to make them financially viable. In addition to this, being able to choose between a range of materials that exhibit different tactile qualities, such as metal and concrete infused plastics, engages the user in the designing process in a unique, entertaining way. These attributes have the ability to introduce and attract new audiences to 3D printing technology, who may then utilise its sustainable, useable and hedonic features.

This project findings will be of benefit in its potential preservation of architectural sites, through increased engagement and questioning of the place's 'rejection', by accenting the aesthetic, historical, scientific and social value for past, present and future generations.

It is anticipated that the main benefactors of this project findings will be national and international heritage organisations involved in the listing of modernist 'not yet loved' architectural sites, local communities and the wider public who live and interact with the places and buildings and architectural practitioners and students. The beneficiaries of this research would also include design manufacturers, academics and students studying product, jewellery, textile design, marketing, event management and tourism. Finally, the project findings will be of relevance to the wider community groups who live in the buildings, who will have spiritual, political and national, cultural sentiments that will be explored through this project.

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