

Institution: University College London		
Unit of Assessment: 15 – Archaeology		
Title of case study: Food Heritage: enabling collecting institutions and their communities to shape research and policy on food and food security and contributing to UN-Sustainable Development Goals		
Period when the underpinning research was undertaken: 2005-2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s): Theano Moussouri	Role(s) (e.g. job title): Associate Professor	Period(s) employed by submitting HEI: 2005-present
Period when the claimed impact occurred: 2016-2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact (indicative maximum 100 words)		
<p>Participatory research led and carried out by Moussouri in the context of the BigPicnic project showed the unique role that botanic gardens (as trusted public institutions and catalysts) can play to bring about attitudinal, behavioural and political change around food and food security. It: (1) informed and changed the relationship of European and Ugandan citizens to food and food choices (180,000 visitors and 6,982 science café users); (2) built skills and capacity and changed the practices of botanic garden professionals; and (3) shaped policy debate related to food and food security in Scotland and Canada.</p>		
2. Underpinning research (indicative maximum 500 words)		
<p>Moussouri's museum studies research on museum visitor behaviour and visitor motivation has shown that critical participatory research methodologies have a pivotal role in helping to go beyond impacts as typically conceived by scientists and science museum professionals. Her insights help those professionals to understand and meet the needs of under-represented audiences/voices [R1], and thus help them to understand and tackle societal challenges such as food security [R2]. She has developed innovative research methodologies to investigate how visitors, as diverse sets of stakeholders, engage with resources and displays in museums and other public spaces. Her approach includes the use of automated data collection and analysis, which extend observation studies through the use of indoor and outdoor location and positioning technologies [R3]. She also uses mixed-methods methodologies that involve the iterative use of quantitative and qualitative data, such as participatory methods and action research as well as self-administered large-scale surveys respectively [R1-R5], and she uses arts-based and visual research methods of inquiry [R2/R5/R6]. Her recent co-authored textbook Museum Learning [R6] shows that for museum visitors learning must be considered not just as a cognitive process, as some perspectives propose, but also as affective, taking into consideration interests, attitudes, and emotions, and as a social practice, situated in cultural contexts. The book draws attention to the development of theory and its practical applications in museum contexts such as aquariums, zoos, and botanical gardens, where learning takes place outside formal education settings.</p> <p>BigPicnic was a collaboration between a number of UK-based partners, including the Royal Botanic Garden Edinburgh, Botanic Garden Conservation International and University College London, as well as 19 international partners, ranging from universities to a Science Shop (organisations created as mediators between citizen groups and research institutions). Funded by the European Commission, the BigPicnic project aimed to address food security issues in the context of botanic garden education by linking food security, climate change and plant diversity. Through co-creation and public debate, it built public understanding of food security issues and enabled adults and young people across Europe and in Africa to debate and articulate their views on Responsible Research and Innovation (RRI) in this field to their peers, scientists and policy makers. It ran from May 2016 to April 2019 in fourteen European Botanic Gardens, and one in Uganda, amassing data from over 4,500 citizens [R2]. Moussouri led the evaluation and team-based inquiry process. Moussouri's research [R4/R5] facilitated the co-creation of knowledge around food security by bringing together citizens, scientists, industry, and policymakers, and by embedding the evaluation of the BigPicnic project activities and their impact in the co-creation process. Drawing on [R4/R6] she introduced project partners to research methods, such as video recording and digital approaches, and their application in a participatory context to enable</p>		

participants to share their experiences. Participants co-created exhibitions and science café events about food security, and concurrent analysis of this research data (the process and its outcomes) fed back into the project, shaping the next stage of the research, iteratively co-producing research and facilitating impact.

According to the UN Food and Agriculture Organisation, food security can be defined as existing “when all people, at all times have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”. Previous research into food security had failed to take into account the multiple actors involved in this complex system and their perspectives. Understanding why people adopt particular eating behaviours is important in order to develop educational programs with the potential to support behavioural change. BigPicnic asked the following research questions: Do people who participated in outreach activities offered by Botanic Gardens consider socio-cultural motives in food choice as important? Do people who participated in such activities in different countries and cultural settings respectively consider socio-cultural motives equally important? In phase one, the BigPicnic project collected evidence from 4,500 participants through a series of qualitative studies. This research showed that food choices are shaped by a range of motives, including the importance of the cultural value of food and its status as a form of cultural heritage. In phase two, the project team surveyed a random sample of 1,189 European citizens who attended BigPicnic events. This quantitative survey tested whether the cultural heritage dimension of food would appear in a multicultural sample and thus underpin the importance of food choice in relation to socio-cultural and natural concern (preference for food from fair trade or organic farming) motives. As Moussouri’s 2020 article [R2] shows, the quantitative survey reflected the findings of the qualitative studies: the cultural value of food and the notion of food as a form of cultural heritage as important motivators in food choices was identified as the fourth most important priority across all the studies. In other words, citizens associated food security with cultural security and longevity, while they saw threats to food systems as a threat to maintaining humanity. Despite this, as Moussouri shows, the role of food heritage in food security is overlooked by UN and EU policies such the UN SDGS and EU Food 2030 [R2]. Heritage is a key parameter that is to a great extent omitted from both the key definition of food security and the associated European and global policy that deals with food and sustainable development; but Moussouri’s research for the BigPicnic project highlighted the need to recognize its importance for such work.

3. References to the research (indicative maximum of six references)

- R1.** Haywood, N., & Moussouri, T. (2017). The Building Bridges Research Project at the London Science Museum: using an ethnographic approach with under-represented visitor groups. *Archaeology International*, 20, 69-73. <https://www.doi.org/10.5334/ai-356> . Peer reviewed journal article.
- R2.** Kapelari, S.; Alexopoulos, G.; Moussouri, T.; Sagmeister, K.J.; Stampfer, F. (2020). Food Heritage makes a difference: the importance of cultural knowledge for improving education for sustainable food choices. *Sustainability*, 12, 1509. <https://doi.org/10.3390/su12041509> Emerged from [i]. Peer reviewed journal article
- R3.** Moussouri, T. and Roussos, G. (2013). Examining the effect of visitor motivation on observed visit strategies using mobile computing technologies, *Visitor Studies*, Volume 16, Issue 1, 21-38. DOI: <https://www.doi.org/10.1080/10645578.2013.767732>
- R4.** Moussouri, T. (2014). From “telling” to “consulting”: a perspective on museums and the modes of public engagement. In S. Thomas, J. Lea (Eds.), *Public Participation in Archaeology* (pp. 11-22). Suffolk, UK and Rochester, NY: The Boydell Press. ISBN-10: 1843838974; ISBN-13: 978-1843838975. Peer reviewed book chapter [available on request].
- R5.** Moussouri, T. (2012). Knowledge management for collaborative exhibition development. *Museum Management and Curatorship*, 27 (3), 253-272. <https://www.doi.org/10.1080/09647775.2012.701996> . Peer reviewed journal article
- R6.** Hohenstein, J. & Moussouri, T. (2018). *Museum Learning: Theory and Research as Tools for Enhancing Practice*. London: Routledge. ISBN: 9781138901131 (pbk). Item submitted to REF. [available on request].

Grant details

i. European Commission Horizon 2020 - 'Science with and for society'. ISSI .1.2014.2015 – 'Pan European public Outreach: exhibitions and science cafés engaging citizens in science', GBP3,500,000 (EUR3,435,017.50; EUR184,610 to UCL) UCL PI: Moussouri.

4. Details of the impact (indicative maximum 750 words)

Taking a holistic, contextual and participatory approach to research and public engagement, the BigPicnic project investigated the global challenges of rising obesity rates, food security and sustainability through contributions to policy, culture and capacity building. It: (1) shaped policy debate related to food and food security in Scotland and Canada; (2) built skills and capacity and changed the practices of botanic garden professionals; and (3) informed and changed the relationship of European and Ugandan citizens to food and food choices.

1. Shaping policy around food and food security in Scotland and Canada and informing the methods used to collect evidence in Scottish Parliament

Moussouri's research demonstrates the value of participatory engagement and was used on BigPicnic to co-create community-led food initiatives, which used participatory methods, such as video recording, to engage participants [R2/R4/R6]. Her findings were shared with project partners such as the Royal Botanic Garden Edinburgh (RBGE), who used these participatory methodologies to collect peoples' views about food. A representative of RBGE explains: "During our work on food insecurity we found digital storytelling to be an effective and user-friendly way of giving people the tools to share their own experiences of a potentially sensitive subject" [A]. Their co-creation team on the BigPicnic project used the digital storytelling technique to tell 19 stories which explored food security from different perspectives. As a result, in Scotland the project shaped understanding of participatory practices and community engagement at governmental level. On 16 January 2019 the BigPicnic project presented the stories at an event at the Scottish Parliament which was held as part of a consultation over Scotland's ambition to become a Good Food Nation. Eight MSPs from four parties attended and a further two sent their representatives. Colin Smyth, MSP of Scottish Labour, sponsored the event. Smyth highlighted the key role of community involvement as epitomised by BigPicnic, and its role in advocating legislation about the right to food stating: "the communities, the work that you are doing, will be absolutely at the heart of it. The BigPicnic project, I think, is a fantastic example of the type of work that we should be seeing developed and we should be seeing supported in the months ahead. I think too often those of us that make policy don't listen to the voices of people in communities that are actually there trying to deliver" [B].

The Committee Engagement Unit (CEU) at the Scottish Parliament visited the RBGE to learn about BigPicnic and its participatory approach and successes in data collection and analysis as well as their use of digital storytelling. Subsequently, as the RBGE explains, CEU "went on to train about 20 staff members from across teams at the Scottish Parliament [and] with these skills CEU worked with 13 women over 5 sessions to provide evidence for the Equalities and Human Rights Committee and inform their inquiry into a Protection Act for women affected by Female Genital Mutilation [FGM]" [A]. As SNP MSP, Ruth Maguire, explained in an article in The National (9 February 2020, circulation 9,746), to acknowledge the emotional impact of sharing these experiences, "Women affected by FGM spoke about their experiences in their own words, creating short films [digital stories] for the committee. This meant they could be anonymous but tell their story their way" [C]. Six of these stories are available on the Scottish Parliament website [C]. The FGM Bill, which aims to strengthen the law and protect women and girls, was introduced to the Scottish Parliament on 29 May 2019. The Committee published their report on 5 December 2019 and debated it on 23 January 2020.

Moreover, BigPicnic had a significant impact through its International Consolidation Group (ICG): The Executive Director at Food Secure Canada stated that: "my involvement in this project played a role in my securing my new position as Executive Director of Food Secure Canada where I'm also able to leverage what I learned through the Big Picnic on a very practical level. [...] The grassroots nature of the Big Picnic project combined with an interest in influencing policy has informed my work for this new employer" [D, Canada].

2. Building skills and capacity in the European botanic garden sector

The UCL team and partners trained botanic garden practitioners in the use of participatory approaches to creating knowledge around food and food security issues with different publics. The impact on exhibition development practice was considerable: “Co-creation really gives you [...] an understanding of what people expect and need. So making them part of the design process is definitely inspiring and enriching for my exhibition work.” [E1, Madrid]. The Head of Education at the Leiden BG now “integrate[s] the co creation method whenever possible” and they have gone onto hold science cafes twice a year [F1, Leiden]. Co-creation was a catalyst for organisational learning and development and for creating more inclusive organisations: “This allowed us to get to know each other better, and try to break through the staff hierarchy.” [G, Warsaw]. Participatory research training provided botanic garden practitioners with new knowledge and skills: “It has given me many tools for analysing qualitative data [...]. Thanks to this, I have a wider point of view about food security issues and about people concerns about it.” [E2, Madrid]. Furthermore, it led to the realisation that participatory modes of engagement can inform practice and collect knowledge about the collections: “what was for me really an eye-opener, is that we can- [learn from each other].” [H, Meise]. “Co-creation became for me a ‘lesson for life’” [F2, Meise]. Meise Botanic Gardens’ (MBG) decision to host the African Diaspora Agrofood Forum arose from this realisation. One member of MBG’s Education team was so inspired by the transformative potential of the participatory approaches developed by UCL team and partners that she “set up a project that helps 25 single mothers and their many children, that aims at fighting problems of food security and lack of income, with lack of acces[s] to education and health care as a result.” [F2] Furthermore, Waag, a Dutch non-profit, used key elements of the BigPicnic co-creation training to create an open-access online training resource, the Co-Creation Navigator, used by 44 EU botanic gardens and adopted by the Erasmus Plus LearnToEngage project led by Botanic Gardens Conservation International (BGCI) and three Horizon 2020 projects. Waag’s Creative Director and Head of Programme noted that: the Navigator “has led to a quicker and more efficient process in preparing co-creation activities in these projects and gives partners more assurance on what they are doing” [I].

3. Changing public attitudes to food and food choices

Between 2016 and 2018, the BigPicnic project team enabled development of 15 co-created exhibitions on food security issues and 92 science cafés across 59 locations, attended by an audience of 180,000 visitors and 6,982 science café users respectively. Exhibition visitors noted the benefits of informal learning opportunities or opportunities to change food habits and develop skills and knowledge: in Bergamo, one visitor: “went back to visit the exhibition with my daughter to educate her about healthy diet and life style” [G]. BigPicnic enabled the botanic gardens to build strong relationships with local communities. In Leiden, the Botanic Garden is now “active outside our garden; that was not the case before BigPicnic. [...] we are in a nature club in a more poor neighbourhood” [F1]. The African Diaspora, a target group for MBG in Belgium, have now ‘discovered’ the Garden and botanic gardens in general as a hub for knowledge on agrofood and collaboration for projects in their country of origin: “previously members of my community have always viewed the Botanic Garden as a sort of an elitist institution that is out of bound for certain people but open to others, mainly for Belgians [...] But the collaboration that we have has really opened the gate to our community” [J]. As a result, MBG hosted the African Diaspora Agrofood Forum 2018 and 2019, demonstrating the key role of botanic gardens for social cohesion. An Agrofood forum delegate said: “this would not have been possible without the BigPicnic project. During the last edition [forum], many of the African entrepreneurs present, were motivated by the innovative niches and economic potentials in the researches on coffee, mushrooms by the scientists of the Meise botanic garden” [J]. The participatory approaches spearheaded by Mousouri and partners empowered a range of people and stimulated engagement with food justice initiatives and food activism, stimulating political participation. In one notable example, a participant developed her circular economy-based social enterprise in Rwanda supporting over 170 small-holding coffee growers. Another participant at RBGE became involved in food activism: “I’m giving a speech at the Council’s budget meeting on behalf of the Save our Services campaign and we are having a demo at 9am tomorrow.” Two digital storytellers became “involved in the

campaign to save local community food initiatives that are under threat from Local Authority cuts” [A].

Botanic gardens and their partner organisations were empowered to take action on food security issues of local relevance. MBG surveyed Garden staff (n: 110) about their food preferences. The survey showed a clear preference for seasonal (56%) and locally grown vegetables (34%), and a trend towards avoiding foods that have a negative impact on biodiversity (e.g. fish, 61%) [G]. As a result, the MBG canteen changed its provision so that all meals now include at least one vegetable serving and they offer an additional vegetarian meal.

Overall, the use of a participatory approach as developed and applied by Moussouri and project partners demonstrated its potential not only to co-create sustainable food systems, but also to delve deeper into how food is embedded in every aspect of people’s lives. The application of a participatory approach had an impact on all stakeholders: it empowered citizens to view themselves as co-creators of sustainable food futures; it transformed the practice of botanic garden partners and enabled them to engage with different communities whose views of food should be reflected in future policy; and its adoption by CEU at the Scottish Parliament enabled them to introduce a major policy shift and deliver an ambitious new FGM legislation that strengthens the law and protects women and girls against violence. In addition, evidence of the important role that food heritage plays in citizens’ behaviour and choices around food collected by Moussouri and her team led to MSPs considering food heritage seriously when reviewing the Good Food Nation policy.

5. Sources to corroborate the impact (indicative maximum of 10 references)

- A. Evidence and statement, Royal Botanic Garden Edinburgh
- B. Blog post on [Botanics Stories](https://bit.ly/2OoSngb): RBGE Personal & Project Stories: BigPicnic at the Parliament <https://bit.ly/2OoSngb>
- C. Ruth Maguire, SNP MSP, FGM survivors must be heard in our work to stop this violence, The National, 09/02/2020, p. 52. Digital stories on Scottish Parliament website <https://bit.ly/30JhS87> and status of Bill <https://bit.ly/2Q8PxpX>
- D. Factual Statement, Executive Director at Food Secure Canada
- E. Factual statements, 1) Royal Botanic Gardens Madrid 2) Real Jardín Botánico Juan Carlos I
- F. Factual statements, 1) Head of Education, Hortus botanicus Leiden; 2) Meise Botanic Garden, Belgium
- G. Factual statement, co-creation partner of Warsaw Botanic Garden
- H. Evidence of impact on co-creators, exhibition and science café attendees and Botanic Garden Practitioners: Moussouri, T. Kapelari, S, & Alexopoulos, G. (2019), Deliverable D7.3 Quality Management Report, internal technical report and Botanic Garden Meise, Food and the Garden Staff survey, internal technical report
- I. Co-Creation Navigator Usage – factual statement Creative Director and Head of Programme. The Navigator is available at: ccn.waag.org
- J. Keynote Speech by Maureen Duru, CEO of The Food Bridge, at the 2019 African Diaspora Agro Food Forum (ADAFF)