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Exploring the uses of Experimental Archaeology in European Archaeological Open-Air Museums. A critical Study.

By

Lara Comis, MA

UCD Student Number: 17203209

The thesis is submitted to University College Dublin in fulfilment of the requirements for the degree of Doctor of Philosophy in Archaeology.

UCD School of Archaeology

Head of School: Professor Joanna Bruck

Principal Supervisor: Dr Alan Peatfield

Co-Supervisor: Dr Annalisa Christie

Members of the Research Studies Panel:

Dr Jessica Smyth

Dr Alan Peatfield

Dr Annalisa Christie (Co-Supervisor)

Dr Ronan O'Flaherty

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ABSTRACT

This thesis is a multi and interdisciplinary investigation on the intersection between different areas of research at multiple levels of inquiry.

The focus is the intersection between research and public outreach through experimental archaeology in Archaeological Open-Air Museums (AOAMs). This intersection has proven to be problematic in the historical record. The primary purpose was to develop a best practice model at a European level which could meet the highest ethical standards in conjunction with constructive public participation using Citizen Science (CS) approaches.

Theoretical level: considerable work was devoted to setting a proper theoretical framework and the consequent methodology, with an inquiry across archaeology, life sciences, and social sciences. The theoretical framework is Critical Social Science. The study uses social sciences mixed methodologies (Case Study). Such a structured, new approach has produced interesting theoretical contributions.

Methodological level: a new attempt to structure the use of integrated mixed methodologies in experimental archaeology has been outlined within the best practice model.

Context level: an online survey was performed in 2018 with the purpose of mapping relational data about the dynamic under scrutiny, in full collaboration with the EXARC international network. Once actors and locations were mapped, a pilot study was performed in 2019 using interviews and public observations (Ireland). Qualitative analysis delivered insights for the best practice model.

Outputs: due to the Covid19 Pandemic and other restrictions, the best practice model could only be delivered at a theoretical level.

Two spin-offs of the research work were designed and disseminated using CS approaches:

1. ABADIR: to share the sounds from experimental archaeology and re-enactment (social praxis: integration of makers and researchers; research potential: sensory archaeology).

2. mapping extant ancient technology practices (social praxis: integration of makers and researchers; research potential: integration of classification, experiment, and taxonomy in archaeology).

I hereby certify that the submitted work is my own work, was completed while registered as a candidate for the degree stated on the Title Page, and I have not obtained a degree elsewhere on the basis of the research presented in this submitted work.

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Introduction

The research path which birthed this piece of work was very complex. The primary aim was to clarify the positioning of experimental archaeology's role within the epistemological discourse and how it interrelates with contemporary society by targeting the relationship between academia, intended as primary knowledge creator, and Archaeological Open-Air Museums (AOAMs) in Europe, intended as the locations where that knowledge is shared. In particular, it was trying to evaluate, evidence and give a possible solution to potential issues of epistemic and social injustice by adopting an axial ethical approach to the overall topic.

This thesis, therefore, deals with a conjunction between and among different disciplines. It consequently had to thread carefully in order to acknowledge each of them with a proper perspective, to disentangle the knots enough to distinguish them, and describe the findings.

The term 'Experimental Archaeology' encompasses very different meanings as previously noted both by the author and by other scholars, and yet holds the same "appearance". It was therefore necessary to set a definite perspective on the topic.

The observation point from which this work is describing a whole portfolio of different landscapes is set on the scientific inquiry aspect of experimental archaeology. This allowed the research to tackle some fundamental philosophical issues which ailed the scholarly community for a long time. In fact, considering experimental archaeology from the lens of

scientific inquiry, research, and ultimately as “knowledge creator”, means dealing with epistemological and gnoseological issues. This work had to lay bare the stubborn duality of many couples of opposing paradigms. And it had to carefully probe the quagmire of the methodological debate currently existing in experimental archaeology. Moreover, the attempt of re-assessing the positioning of experimental archaeology in the traditional fields of knowledge had to tackle the primary issue of determining the position of archaeology itself first in the field of social sciences.

On the other hand, the discovery of ethical dilemmas which emerge when dealing with experimental archaeology activities or ancient technology practices in public outreach or craft courses happening in AOAMs across Europe, set the problem in a real life, socially connotated context. In this field another paradigm duality was observed and seemed to pertain mainly to the concept of time and its misuse in regard to power dynamics. This conflict was defined as “the Time Wars”.

The compass was therefore set to *traguardare* (literally to “look through” in a topographical sense) this real-world context at a European level without imposing a rigid top-down view but trying to ascertain what was actually happening in the field.

AOAMs are physical meeting points of all the subjects involved in experimental archaeology practice, and most importantly, a very well-developed heritage communication venue (Paardekooper 2012). Despite the academic view on them, it is in the field that the application of Experimental Archaeology as research can be harvested. It is there, and only there, that the consequences of academic endeavours can be of service to society as a whole. The bitter history of the Third Reich can prove this aspect to be extremely important and points the finger at academics’ social responsibilities.

How to perform such a complex study in such a delicate area? The answer could come only from the social sciences and their methods. The methodological research and comparative analytical study of some of the most resonating methods in the social sciences highlighted many similar conflicts as those that were present also in experimental archaeology and, more in general, archaeology itself. The paradigmatic duality was here described in the opposing terms “qualitative” vs “quantitative”, and the whole debate with a phantomatic definition: “the Paradigm Wars”.

Yet another path had to be explored, at this stage: what is the most credible solution to this paradigmatic duality in the social sciences? And this meant a direct approach to the philosophical baseline underneath, pointing towards an ontological perspective that could observe and overcome the dichotomy. The landscape that was discovered here through the meeting with the work of Roy Bhaskar and the first attempt in connecting Critical Realism to Archaeological Theory, the work of Sandra Wallace (2011), allowed the philosophical grounds of this work to expand and get stronger. The area to be still explored allowed the development of a proposal which includes philosophical, theoretical, and methodological consequences. Being that the boundaries of this study are quite strictly set on the relationship of experimental archaeology in AOAMs from a research point of view, the perspective had to firmly stay on an axial course, passing through all levels of inquiry with an adequate lens.

The importance of ensuring research integrity at all phases of the work (this study included, as part of the GOIPG Terms and Conditions 2020, p. 13), and as a desirable output (such as a more attentive use of experimental archaeology from a socially responsible stance) led the research to deepen the understanding of participatory forms of research, their nature, their scope, and their challenges. The training of the Academy for Participatory Science in Zürich during a fundamental Winter School (January 2020), allowed this work to develop the transdisciplinarity aspect of the best practice model for experimental archaeology and to get in contact with the work of Bruno Strasser (2019) who provided a fundamental historical perspective on the overall epistemological “knot” of the whole study, albeit centred on the life sciences. His work, “Collecting Experiments” highlighted some resonances and dissonances which reverberated also in archaeology and the social sciences, but most importantly, it approached a crucial gnoseological aspect utilizing the so defined “ways of knowing” as a most dynamic analytical category. Strasser’s perspective studies the phenomenon under scrutiny using the two categories of “collecting” and “experimenting”, which hold a fundamental role in experimental archaeology and archaeology in general and are today very closely interconnected with the history of science. Strangely enough, the same stubborn dichotomy existing between the two was observed in the history of the life sciences, and similar conflicts as those described with the

social sciences above produced yet another definition: “the Molecular Wars” (Strasser 2019, p. 258).

Having acquired this perspective on the subject matter, i.e., keeping in mind also the epistemological procedures in the achievement of knowledge, or “ways of knowing”, this work has attempted to lay bare the issues existing in the world of archaeology and experimental archaeology alike, in order to set a possible development: the only innovation that could be performed at this time.

Since one of the possible solutions to the miscommunication or commodification of the past (both for political or financial reasons) was detected in the involvement of the public and by providing them with the tools of a healthy critical thinking, and since the crucial issue which emerged from the methodological quagmire in experimental archaeology was pointing to the nature of scientific inquiry itself in academia, Citizen Science seemed to be by far the most inclusive solution, one that could provide both parts to achieve some enhancement.

As specified above, though, this knot brings together also some major other distinctions, which sometimes are felt as dichotomies, such as the one existing between different methodologies of research (quantitative vs qualitative) and ultimately with the distinction between science and social science, too, dragging on its back the old-paradigm opposition between the human sciences and the natural sciences. These weights had to be discarded for the sake of a more encompassing pragmatic view, inspired by the work of Roy Bhaskar specifically, but which has a well-developed analytical procedural line in social sciences integrated methodologies.

By attempting to use these methodologies on all levels of this research, therefore firstly on the theoretical level by using an adapted theoretical social-scientific framework, then on the internal methodological proposal for the use of integrated methods in experimental archaeology, subsequently on the field and in the analysis of the gathered data, and finally in the proposal for a best practice model integrating Citizen Science principles, providing two examples of the application of the overall findings, this research has tried to encapsulate all levels with a specific approach.

The structure of the work is cyclical within each chapter, and, since it is partly using a Grounded Theory approach (Glaser 2001, p. 27) through retroduction, is framed as a constant re-definition of goals according to the findings, both theoretical and factual. Therefore, the research questions of this study are to be found in Chapter 2, after the literature review. Also, the methodology, which can be read in the first Chapter, was stabilized only after determining the theoretical framework and in-depth theoretical framing in Chapter 3. The thematic concepts gathered in the theoretical stage of this research were then investigated in the field with the tailored methodology.

Chapter 4 is dedicated to the illustration of the online survey performed in 2018 and the details of the mixed methods analysis results. The survey was launched with the collaboration of the EXARC international network and had the aim to detect best practices in experimental archaeology and AOAMs among the three main categories of agents in experimental archaeology activities, for the first time mapped together: Museum Institutions, Academia, and Independent Activities.

Chapter 5 describes the outputs of a Pilot Case Study, performed in 2019 in two AOAMs in Ireland before the Covid19 Pandemic halted any other possible fieldwork. The Pilot Case Study contains mainly qualitative analysis results, particularly important in the development of the rest of the work.

Chapter 6 is the attempt to deliver some final considerations and potential further research projects based on the results so far obtained. The original aims of the project, as they were designed in 2016, had to be abandoned and transformed to adapt to the imposed restrictions of movement and general instability caused by the Covid19 Pandemic. This chapter, therefore, illustrates theoretical, methodological, and applicative results of the work.

The conclusions Chapter contains the summary of the general results and the critical analysis of the whole thesis, highlighting the drawbacks and the weaknesses, the innovations, and the areas in which the outlined exploration might progress in the future. It also contains some guidelines regarding ethical considerations and possible further applications.

Endnotes at the end of every Chapter were used to clarify and deepen some themes touched upon in the text. They also provide definitions and descriptions of interdisciplinary terminology used in the text which may cause some confusion in the reader.

Finally, a quick clarification on the use of capitalization in this work: when a capitalized word or group of words is found in the text, the meaning is referred to as:

1. The general concept as utilized in the academic and scholarly context and not in the common use, such as the difference between what experimental archaeology is perceived to be from a general public perspective and what Experimental Archaeology is considered to be from a research perspective, or Case Study.
2. An analytical category which has been used in the survey, in the pilot study, or in the philosophical discussion, such as Academia and Independent Activities.
3. Some groups of words which will be later utilized in form of acronym, such as Archaeological Open-Air Museum and AOAM, Critical Social Science and CSS.
4. Titles of books, programmes, courses, trainings, such as Citizen Science Winter School.
5. Citations of webpages such as EXARC Website.

1

Methodological Framework, Methods and Research Design

1.1 Research methodology.

The relevance of knowledge is its ability to connect consciousness to people engaging in concrete actions, reflecting on the consequences of those actions, and then advancing consciousness to a new level in an ongoing cycle.

Lawrence Neuman 2011 p. 114

This critical social science exploratory Case Study aims to understand the possibility of determining a solid theoretical asset for experimental archaeology intended as a stratified complex social dynamic phenomenon (Yin 2018, p. 28 passim). In particular, the study is focussed on understanding how research is involved in the social dynamic by acknowledging the epistemological perspective as causal to the overall phenomenon. It also investigates how research is communicated to society through a deepening of the understanding of the relationship between the academic world and the public in the

context of European Archaeological Open-Air Museums (AOAMs) and related activities. In order to detect best practices in experimental archaeology research and public outreach activities which may be modelled to benefit the European context, this exploratory study has been planned as three sequential stages of research in which every phase informs the following to an increasing level of specification (multiphase research: Tashakkori & Teddlie 1998, p. 53; longitudinal case study: Aaboen, Dubois and Lind 2012; exploratory sequential mixed methods design: Creswell 2014 pp. 225-226; Yin 2018). The investigation was originally planned as an in-depth case study with a policy implementation experiment embedded into a multiple case study within a general survey (Yin 2014, p. 16; pp. 187-189, Gibbs 2018 p. 12). This study is idiographic on the phenomenon of experimental archaeology activities in AOAMs and nomothetic in the Case Studies (Gibbs 2018, p. 7-8). An online survey was designed to return data on the general feedback by representatives of the social segments involved in the phenomenon as well as to bind the case to one specific event in a specific context (Yin 2018 pp. 28-31). Subsequently, a pilot case study was designed and performed in Ireland as a way to test the data collection strategy for the foreseen multiple case study.

A fundamental role was performed by the EXARC International Network which collaborated in all phases of the research process and whose members actively participated in the research, even though the survey reached far more non-members than expected.

The integration of mixed methodologies was performed in all the stages. This study used the nested arrangement (Case Study within a survey: Yin 2018 p. 64). Quantitative analysis was kept to a minimum to very specific aspects of the research, namely that of attempting a comparison with previous work. Qualitative research was performed extensively to assess the current situation in Europe (Chapter 4) and in the pilot case study (Chapter 5 - Yin 2018 pp. 106-109). In this multiphase mixed methodology research strategy, the output (implementation model) was placed before the in-depth case study to reach European targets before adapting to a place-bound format for the actual experiment of the implementation policy. In this way, the model would have been dynamic and

adaptable to different countries but would necessarily have been shaped consistently within the testing context (see fig. 1. 1).

However, the Covid19 Pandemic in Europe and the consequent restrictions of movement, the unforeseeable consequences on AOAMs (Paardekooper & Pothaar 2020), and the general uncertainties affecting all levels of the researcher's professional and personal life forced this research to adapt quickly to the situation. This necessitated the cessation of fieldwork research at the pilot case study phase, and to developing the best practice model at a purely theoretical level, while simultaneously tracing and pursuing other outputs which could benefit the field (Chapter 6).

1.2 Internal Boundaries – External limitations

This study was limited to assessing the state-of-affairs in academic contexts and other institutional or independent research activities in relation to activities performed in Archaeological Open-Air Museums (AOAMs) in the European area (geographical boundaries). The chosen language is English, currently the principal language used amongst the members of the EXARC international network. The collaboration with EXARC provided a defined and well-structured framework for the study. However, it must be stressed that the use of English language is a general limitation in the study of the field, which has long traditions and very active contemporary practices in countries with different native languages. Misinterpretations, both by the researcher and the respondents who are instead using the English language as a means for international communication and not as a cultural expression, are likely to affect the impact of this study.

Despite the clear geographical boundaries, data were received from other countries, and some respondents of the online survey (see 4.3.1) were outside the network.

All those activities which were self-defined as experimental archaeology but did not fulfil the aim of the enhancement of knowledge about the past (see Chapter 2, paragraph 2.1), or that were performed out of the above-mentioned realities (e.g. in traditional

museums, for example), were observed and mapped, but the analysis aimed at dealing specifically with research led activities with the participation, or the potential participation, of the public in AOAMs (see paragraph 2.4.3).

The complexity of the “internal” issues regarding experimental archaeology research activities, both theoretically and academically, and the afore-mentioned obstacles to the performance of fieldwork activities, also due to the effects of Covid19 restrictions, have made it impossible to include a more general investigation of the general public, despite a pre-evaluation attempt being performed internally in the Higher Education Institution with which the researcher was at the time involved (see Appendix n. 5). A critical social praxis during the policy implementation experiment in the final phase of the research was designed according to Citizen Science protocols (Hecker et al 2018). It was to be performed with a specific Community Experimental Archaeology project (see paragraph 6.4; Appendix n. 8). The state-of-affairs from March 2020 onwards prevented the realization of this last step and the obligatory transformation of the final outputs of this research.

Below a description of the different stages of research from a methodological perspective can be found.

1.3 Methods and Research Design (fig. 1.1)

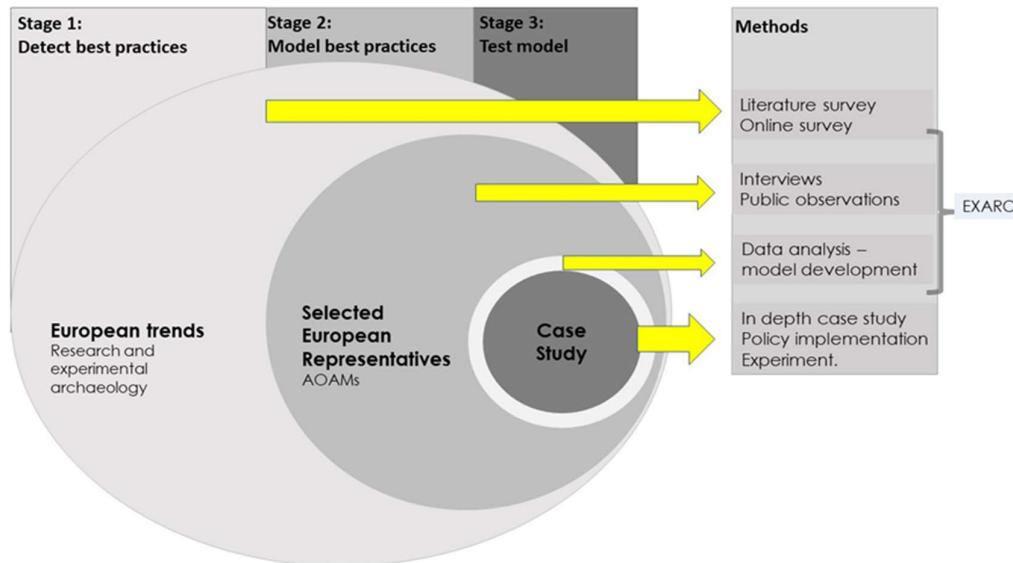


Figure 1.1 Scheme of the research procedure of this study before the Covid19 Pandemic. Stages on top of image.

1.3.1 Stage 1 – Mining and Gardening

In the first stage of the study, European trends regarding research and experimental archaeology were investigated with a literature review and an online survey. The aim of this first stage was to detect best practices in the field, and to start the collection and assessment of qualitative concepts and relational data.

The **literature review** was carried out to identify the current state-of-affairs in terms of the exploration primarily of theoretical positions and methodological outcomes in experimental archaeology research practices. This phase can be defined as the “mining” of extant data (Salmons 2016, pp. 8-10 – see Chapter 2). As a consequence of the theoretical issues uncovered in this review, an epistemological triangulation was pursued to build an original theoretical framework through Critical Realism perspectives (see below, 1.6).

The relationship between experimental archaeology and research was deepened through the **online survey** based on the collaboration with the EXARC international network. During the survey, AOAMs realities and surrounding activities were mapped in a relational scheme and elicited data were gathered to bind the Case (“gardening”, Salmons 2016 pp. 8-10; Yin 2018, pp. 28-31). Please see Chapter 4 for detailed methodology on the online survey. Here it will suffice to say that the questionnaire was designed with mixed methodologies and consequently analysed.

1.3.2 Stage 2 – Gardening and Traveling

The second phase of research was originally aimed at detecting **relevant case studies in Europe**, to be selected for the qualitative inquiry: public observations and in-depth interviews (Yin 2018 p. 118-123) and gathering of enacted data, or “traveling” (Salmons 2016 pp. 8-10). Only a Pilot Case Study could be performed on the bounded case before the Covid19 Pandemic in two AOAMs located in Ireland and following the guidelines obtained in the first stage of research (see Chapter 5). One key focus of this investigation was to ascertain the community engagement in the experimental archaeology activities and to probe the potential for participatory research or Citizen Science. The expected output of this second stage of research was that of gathering data which could be modelled in best practices, both from a content-wise perspective and a practical, “management tool-kit” perspective.

The relevant stakeholders selected were acting in **AOAMs** realities, as mapped in the previous stage of research.

During this stage, the focus was shifted to AOAMs and their issues. Information was gathered not only about the relevance and modalities of experimental archaeology activities in AOAMs but also their internal management structures and culture. This provided a means with which to detect patterns intertwined with best practices in experimental archaeology activities. Deeper knowledge was pursued in key ethical issues: honesty in interpretation both in research and in AOAMs and community commitment.

Even though this aim was sufficiently specific to return valid data, as it was evidenced in the pilot study (see Chapter 5), the impossibility to perform extensive fieldwork due to the Covid19 Pandemic prevented completion of this research.

This stage ends the data collection campaign.

1.4 Mixed methods, analysis, and data characteristics

The careful measurement, generalisable samples, experimental control, and statistical tools of good quantitative studies are precious assets. When they are combined with the up-close, deep, credible understanding of complex real-world contexts that characterise good qualitative studies, we have a very powerful mix.

Miles, Huberman, & Saldaña 2014, p. 43, as quoted in Bazeley 2018, p. 12

In this research, as already stated, a mixed approach was chosen to tackle the research process.

The complexity emerging from the interactions between all the different parts involved in the “experimental archaeology phenomenon”, demanded adequate methods to address, plan and carry out the study. The necessity to address this tangled up mixture of issues pointed out the need to use different perspectives of inquiry to light up the whole complexity of the system. Therefore, a mixed methodology seemed to be the most adequate approach, in order to “investigate a problem from multiple viewpoints, with flexibility to adapt to changing situations, yet able to produce credible results convincing to different audiences” (Bazeley 2018, p. 4). Since the outer level of this study falls nicely within the realm of the social sciences, the use of mixed methodologies to understand and explore the phenomenon of experimental archaeology is felt adequate. Even if the boundaries for the application of mixed methodologies have been proven a difficult, sometimes impossible task (Bazeley 2018 p. 6), it is nonetheless true that in this work a

substantial attempt has been made in order to let the different methodologies used “converse” with each other throughout the whole study, attempting the integration of methods in all phases (Bazeley 2018, p. 7). In this work, aspects relative to the multi-dimensionality of both the phenomena under scrutiny and the methodologies used are echoed both in the Critical Realist view of reality and in the accountability of mixed methodologies approaches (for the latter, Bazeley 2018 p. 11). Moreover, the iterative process of integrating methods links back to abductive logic, or “retroduction” in Roy Bhaskar’s terms (see Chapter 3).

Ideas based on previous experience and knowledge are challenged, leading to further exploration development, theorising, and testing in a back and forth movement between inductive and deductive processes.

Morgan 2007, in Bazeley 2018, p. 12-13

Rather than aiming at a clear-cut distinction between the quantitative/qualitative polarity, in this research the existence of a “continuum with multiple dimensions” (Bazeley 2018 p. 9) has been acknowledged and used (see Chapter 6).

Part of the quantitative methodology was used to address measurable data from the results of the online survey which constituted the first action of this work (see Chapter 4). The rest of the data-gathering process and the consequent analysis used qualitative approaches to research as defined by Gibbs:

Qualitative research is intended to approach the world “out there” (not in specialized research settings such as laboratories) and to understand, describe and sometimes explain social phenomena “from the inside [...].

Gibbs 2018, p. xii

Specifically, this research addressed the analysis of textual data which are included in the category of qualitative data: “just about any form of human communication – written, audio or visual – behaviour, symbolism or cultural artefact” (Gibbs 2018 p. 3). This research has analysed textual data, and specifically:

- Individual interviews transcripts
- Elicited written answers to the survey
- To a lesser extent, also what is defined by “ethnographic participant observation” written notes have been analysed (Gibbs 2018, p.3).

More generally, the documents written during the research process were: research diary (a personal diary with notes and reflections on different subjects including the research topic). Fieldwork journal and field notes (“day-to day written record of the most notable observations or simply of the accomplished research protocol of the day, commentaries and reflections” - Gibbs 2018, p. 39-41).

1.5 Validity and data collection strategy on the field

Within the boundaries of this research, validity has been considered very seriously. A first stage was the analysis of a **Critical Case** (Lisnagun, Ireland: Comis 2017, Appendix n. 1). The critical case (Yin 2018, p. 49), serves the purpose of analysing reasons for the failure of the relationship between academic institutions and potential AOAMs, in order to categorize the absence of quality.

In the first stage of research, data **triangulation** methods “involved combining data sources to study the same social phenomenon” (Denzin 1978; see also Tashakkori & Teddlie 1998 p. 169; Gibbs 2018; p. 131-132, Lawrence Neuman 2011, pp. 166-167; Yin 2018, p. 128) by gathering data from **Academic research institutions, AOAMs and Independent Activities** (see Chapter 4). Since data were collected axially through the categories from which responses were stimulated, the research has a multilevel use of approaches: data from more than one level of organizations or groups are used to reach

more comprehensive inferences regarding behaviours and/or events (Tashakkori & Teddlie 1998 p. 48). **Methodological triangulation** has also been performed by using the mixed method design: qualitative and quantitative data are collected at the same time and analysed in a complementary manner (Tashakkori & Teddlie 1998 p. 47).

The **sampling strategy**, relying on the collaboration of the EXARC international network and therefore contacting primarily its members, was stratified non-random sampling, as only a portion of subgroups (strata) were used, and the selection was determined by the respondents' intention (also called "quota sampling": Tashakkori & Teddlie 1998 p.76).

During the pilot case study, a process of **member checks** was planned to ensure that participants were fully aware of the content of the gathered textual data and were given the opportunity to revise and edit them before the analysis (respondent validation, Gibbs 2018, pp. 132-133).

In the second stage of research, qualitative analysis was carried out with the aid of a **software** for qualitative text analysis (NVivo: Bazeley & Jackson 2013). This is aimed at reducing the positionality of the researcher in detecting nodes of meaning and hidden relationship among the concepts and praxis under scrutiny, although it is useful to remind ourselves that, despite what might seem from an outsider perspective on qualitative research, the use of software to process and analyse data is not substituting for the personal contribution of the researcher (Gibbs 2018 pp. 2, 146-7).

1.6 Internal Validity - Epistemological Triangulation

In order to strengthen the internal validity of this study, given the cloudiness of theoretical positions in archaeology and in the fragmentation of experimental archaeology practice in academia, an epistemological triangulation was undertaken (or theory triangulation: Lawrence Neuman 2011, pp. 166-167; Yin 2018, p. 128). This was performed following the three paths of the principles of the life sciences, science and social science

and focussing the perspective on experimental archaeology itself. The results of this effort are discussed in Chapter 3 and defined in Chapter 6.

1.7 Challenges

The most probable challenges that this study is going to meet are the **biases** which affect solicited data: acquiescence or bias/agreement; extremity bias: the tendency of picking up the end point of a scale; central tendency bias selecting the middle; positivity bias, selecting the positive side of the response option. These biases may harm the internal validity of the first stage of the study, with detrimental effects on the subsequent stages (Tashakkori & Teddlie 1998 p. 101). The need to perform qualitative research on the overall topic is, however, “crucial in research on cross-cultural and multicultural issues, when the psychological repertoire is not readily known” (Tashakkori & Teddlie 1998 p. 101). Despite attempting to design a mixed methodology for solicited data (such to use comparative evaluation on narrative responses and the Likert-Type scale questions), it is only the qualitative text analysis that will determine whether biases are relevant in this study.

Time constraints, budget constraints, difficulty of access, language issues, training and other similar aspects may have created a contraction or superficiality in the explored issues.

The positionality of the researcher is the other major challenge that can taint this ambitious work. To avoid biases due to the researcher’s positionality, efforts have been put in place to clarify as much as possible the perspective of the work and the tailored theoretical framework. Moreover, **research ethics** protocols were carefully applied in all stages of research. Apart from the standard research ethics protocols, such as honesty and respect towards institutions and participants alike (see the application of the GDPR regulations during the online survey: Chapter 4), one of the main aspects was research integrity and independence. Research integrity was pursued both as an internal target both as an output of this work (GOIPG Terms and Conditions 2020, p. 13).

1.8 Mission

The deepening of knowledge in the three fields of research, education and tourism and the consequent social responsibility reflections, led to the understanding that the unifying concept through which the whole issue could be properly addressed was ethics.

From this perspective, the underlying vision (or mission) for this thesis is to **promote awareness**. This sentence, together with ethics as a unifying concept (Lincoln and Cannella 2009), are the primary foundations on which all the work is based.

2

Experimental Archaeology and AOAMs today: framing the issue.

2.1 Introduction and core assumption: the research perspective.

This interdisciplinary analytical study explores the relationship between Experimental Archaeology and Archaeological Open-Air Museums (AOAMs). The first part of this chapter will be dedicated to defining these two elements of enquiry. Although they will be dealt with in separate paragraphs, the distinction between experimental archaeology and AOAMs is largely artificial – the product of the need to categorise for convenience or to avoid misunderstanding of their purpose.

The close interrelationship between Experimental Archaeology and AOAMs is fundamental to the arguments presented in this thesis and will be highlighted and explored accordingly in this Chapter, in order to be developed and further analysed in the theoretical discussion in Chapter 3. But before moving forward, it is necessary to clearly state the primary, core assumption upon which this study is based.

When used as a research tool, experimental archaeology yields data and insights relevant to archaeological fieldwork, excavation techniques and artefact analysis

(chemical, physical, functional, and technological). Significantly, both the processes and the outcomes of archaeological experiments create insights into relationships between the technological, material aspects of a society and the environment in which it lived and, perhaps, even insights into the lives and motivations of the people within that society. Experimental archaeology can also be integrated with other fields of research and return interesting outcomes, specific to any chosen chronology, such as the interaction with historiography, for example. It also creates very important educational by-products in settings beyond research, such as those performed in AOAMs.

Research through experimental archaeology is in a cause-effect relationship to the overall topic of this study and will therefore be considered as a fundamental perspective from which to set the overall framework (Beck 2011, p. 169).

Secondarily, since research in archaeology, in the widest possible definition, is the source of all the required information used both in experimental archaeology and in AOAMs (Reynolds 1999a, p. 157; Outram 2008, p. 4), this study could not avoid tackling some basic issues related to research in archaeology *tout court*.

Core assumption

Experimental Archaeology is primarily a Research Tool

A series of issues pertaining to experimental archaeology and AOAMs will be highlighted, and the role of the research aspect will be stressed and embedded into the discussion section. Research questions will be shaped and a proposal for integrating and overcoming the issues will be presented according to the outlined logical framework (Yin 2018, pp. 186-194).

2.2 Experimental archaeology: an evolving discipline.

It would be comforting to be able to provide a proper definition for experimental archaeology that would clarify, once and for all, what it is and how it is used in archaeological research. This is simply not possible. A short 2011 article about experimental archaeology on “Wired” uses an expression which neatly encapsulates the complexity of the theme:

Dreams become hypotheses.

Keim 2011, p. 1

It is indicative of the complexity of the issue that numerous definitions of what experimental archaeology is have been proffered since the nineteen sixties, yet none has gained universal acceptance (see Ascher 1961; Paardekooper 2019, 2011 p. 69)¹. Unfortunately, since the term was coined by Ascher (1961), scholars (and not only in the English-speaking world) have produced definitions which are often strikingly different from each other.

Compounding this already confused situation is the fact that the actual practice of experimental archaeology often bears little resemblance to any definition, indicative of a hiatus between theory and practice. The following account is limited to the assessment of what has been written about, rather than the practice of, experimental archaeology².

Most of the scholars who have devoted time to that task did so according to their individual theoretical framework, even if some did not acknowledge their affiliation with any specific archaeological theory, let alone philosophy. This situation serves to further obscure an already clouded picture (see below 2.1.1). The resulting view is of a very fragmented discipline, dispersed in a multiplicity of approaches. The impression one can perceive through a chronological survey of the literature is that experimental archaeology was (and maybe still is) in the making, slowly acquiring shape and contrasts, without

actually reaching a final, definitive form. In other words, experimental archaeology, in a meta-study context, is a dynamic concept.

Meta observation 1

Experimental Archaeology is a dynamic concept.

Yet, despite all this confusion, a brief outline of the reflective assessments provided in selected³ literature by experimental archaeologists reveals an interesting picture of the evolution of experimental archaeology, as well as a snapshot of the state-of-the art in the field. New experimental archaeology definitions usually mark a changing point or a new development on theoretical positions, reflecting in some cases the overall theoretical debate, both in archaeology and in other disciplines (see paragraph 2.2.1 for full citations).

The core of the discipline of experimental archaeology is based on addressing problems in the interpretation of the archaeological record through the experimental replication of the process which allegedly informed the archaeological record itself. This statement will be considered as a general definition within this thesis.

EXPERIMENTAL ARCHAEOLOGY DEFINITION:

The core of the discipline of experimental archaeology is based on addressing problems in the interpretation of the archaeological record through the experimental replication of the process which allegedly informed the archaeological record itself.

Scholars who subscribe to a broad definition of experimental archaeology such as this accept that experimental archaeology began well before the coinage of the term itself, and some have identified and published accounts of the different paths along which the discipline has developed (Guidi et al. 2003; Hurcombe 2007, pp. 65-70; Palomo et al. 2018; Paardekooper 2019).

In the United States, the work of Robert Ascher (1961) locates the birth of experimentation in archaeology as far back as the end of the nineteenth century. This was a crucial period in the history of AOAMs, witnessing their birth and early development, as well as the beginnings of the entanglement of archaeology with the dynamics of power (see below 2.2.3). Although there has been recent progress in documenting the history of experimental archaeology in several countries in English (Reeves Flores & Paardekooper 2014, pp. 7-14 and bibliographic indications), language boundaries have so far prevented the production of a comprehensive, international history of the subject.

2.2.1 The development of Experimental Archaeology

So, what is experimental archaeology? What do archaeologists think it is? In order to address this question, it is necessary to discuss the field of archaeology as a whole, a topic that will be dealt with in the next Chapter. Here, it is useful to address the “experimental” part of those two-words that describe the discipline and attempt an outline of the ways in which that term has accrued meaning through the years⁴.

This is crucial, because the term “experiment”, as applied to archaeology, has been charged with a scientific value since the work of Robert Ascher (1961). His work anticipates many of the main themes within the core discussion of this thesis and is an important example of the ways in which the dialogue between experimental archaeologists and theoretical science contributes to the development of the discipline⁵.

One major aspect that Ascher points out is that of the *imitative* character of experimenting in Archaeology.

Key characteristic:

the imitative character of experimenting in archaeology

In 1960 a pioneering long-term experiment, contemporary with Ascher’s work, was begun on Overton Down, Wiltshire (UK). Designed to last for 128 years, this remarkable

work studies post-depositional and taphonomic issues within archaeology. The experiment involved the construction of a ditch and earthwork system based on prehistoric examples, which is subject to regular, scheduled monitoring, requiring stratigraphic excavation and soil and artefact analysis (Jewell 1963; Bell et al. 1996).

Other early works, such as those conducted by Hans-Ole Hansen in Denmark (1962; 1977), used more intuitive methodologies for designing and evaluating imitative experiments. While there was little formal theoretical structure in the research methods used, these experiments placed strong emphasis on ancient technology and the individual and collective skills of the practitioners, something which is still visible in contemporary practice.

A similar approach is in evidence in the works of John Coles (1973, 1979), in this case considerably entangled with technological and archaeological research issues. Although his work was fundamental in establishing the precepts of experimental archaeology, Coles' own theoretical model was explicitly linked with the work of Clarke (1972). Coles, however, limited his investigations to the assessment of the nature of the "artificial hardware model" (Coles 1973, p. 13): the replica as obtained from experimental work. This "model" was then used to test the archaeological interpretation during the experiment. Although Coles was methodical in his work and gave some indications about what he believed the protocol for archaeological experiment should be and how experiments might be categorised, he never explicitly defined the underlying theory. It is, however, possible to identify the theoretical model that Coles relied upon, perhaps unconsciously, in his investigations of the interpretive problems and technological issues of experimental archaeology: it is that of falsification (Coles 1979, pp. 43-48; Hurcombe 2007, p. 66; Outram 2008, p. 1; Paardekooper 2008, p. 1345; Schenk 2015, p. 70-3, passim; Lin et al. 2018).

Falsification can be considered a structured scientific **method**, based on the hypothetico-deductive model belonging to the philosophy of Karl Popper (1959). According to the falsification protocol, an experiment is a process designed to test a hypothesis. After having conceived a hypothesis an experiment can be designed to test the variables entangled in the phenomena under scrutiny. When the experiment is carried out, all details and data are recorded to ensure repeatability. At the end of the experiment, the initial

hypothesis might be falsified, i.e., the results could prove it invalid. If this happens, a new evaluation of the accumulated data can be performed, and a new hypothesis can be tested in a new, more refined experiment. If the results are positive, the hypothesis can be considered valid (never “true”). Even if the initial hypothesis is falsified the results and the experimental protocol adopted are then communicated to the scientific community. The process described would have been useful to provide a solid structure for the advancement of knowledge (and still is, in science).

Key characteristic:

Scientific value of an experiment in archaeology: the relevance of Popperian Falsification used as a protocol

Despite the fact that experimental archaeologist scholars have invested heavily in “hypothetico-deductive” reasoning and relied upon its intellectual “rigour”, in my opinion it is through the acknowledgment of the value of *negative results* that real revolutionary approach of falsification in this remit can be recognised: in the acknowledgment of negative results as useful results in the scientific inquiry⁶.

Some archaeologists have attempted repeatedly to frame experimental archaeology within the remit of science, at least from a methodological perspective. Nevertheless, there is still resistance to recognising the real scientific value of an experiment in archaeology. The basis of such scepticism typically bypasses the philosophy of science and its recent developments⁷.

After Coles, Daniel Ingersoll and William MacDonald (1977) asserted the value of the falsification process in experimental archaeology, highlighting the fact that experiments are not meant to provide a final solution⁸, but serve the purpose of eliminating improbable hypotheses. They expressed the purpose of falsification with an exquisite epistemological turn:

[...] the elimination of non-knowledge.

Ingersoll and Macdonald 1977, p. xvi

Later, Peter J. Reynolds (1994, 1999a) attempted the first systematic definition of the processes and categorization of experiments in archaeology, stressing the importance of the principle of falsification used as the experimental cyclical protocol. Significantly, Reynolds highlighted what he regarded as the inappropriate use of the term “reconstruction”, proposing instead the adoption of the alternative term, “construct”, so as to avoid any confusion about the nature of a building or other object created for experimental purposes (Reynolds 1999a, p. 159; see also the use of “(re)construction” introduced by Outram 2008, p. 2).

Reynolds also tried to differentiate between three major fields: experiment, experience, and education (Reynolds 1999a, pp. 156-158). His focus, from a researcher perspective, was placed on experiments, as those are the base of all the “confirmed” material for both educational and experiential activities (Reynolds 1999a, p. 157). In his view, the logical passages to experimental archaeology are embedded in the wider archaeological research perspective. These fundamental phases are: excavation, data analysis, hypothesis, hypothesis testing (experiment). Experimental archaeology is just the final part of this research process and according to Reynolds must fulfil the following criteria:

- It has to “satisfy the tenets of the academic or technological discipline within whose remits it falls”;
- It must be replicable and replicated;
- It must be designed to yield statistically assessed results;
- The results must be compared with the archaeological data from which the hypothesis was formulated. If the comparison shows positive results, the hypothesis can be validated. If not, the hypothesis must be rejected and can give way to a modified new hypothesis to be tested.

To change the hypothesis and/or the protocol of the experiment in order to obtain positive results will destroy its scientific validity (Reynolds 1999a, p. 157).⁹

At his time, Reynolds felt it was not possible to assess experimentally the “human factor”, as he believed that emotion or motive could not be tackled through the experimental tool (Reynolds 1999a, p. 158). This last observation is crucial, as Reynolds’ view had to come to terms with an aspect that began to challenge the scientific value of experimenting in archaeology: the “unmeasurable variable”, i.e., the human being. We will see how controversial this position and his third point in the above list are in contemporary experimental archaeology practice below.

Moreover, in the 1980s the “post-processualists” sought to challenge assertions that archaeology had to become a purely objective science (tenet of the so-called “new archaeologists”, among whom Reynolds can be included), by shifting the attention to the subject rather than on the object and believing that archaeological analysis could not support the creation of laws as hard sciences do (Trigger 2008, pp. 386-483, but see also Giannichedda 2002, p. 87). More recent post-processualists scholars stress the value of interpretations of the past that are informed and shaped by the experiences of the interpreter, criticising what they considered the overly-scientific credo of the new archaeologists (see the account in Petersson & Narmo 2011, pp. 28-29).

On one hand, this perspective pushed researchers to seek understanding of meaning in material culture in the past at a conceptual level, stressing the importance of awareness of the researchers themselves. On the other hand, if the post-processualists’ paradigm is followed to its ultimate conclusion, archaeological studies and excavations would cease completely as the object of inquiry and any conclusions would be completely contingent upon the researcher’s individuality – a state of complete relativism (Giannichedda 2002, p. 102).

A major early proponent of post-processualism was Ian Hodder¹⁰, who, in some of his early works, tried to define and discard experimental archaeology on the basis of this new theoretical perspective. Experimental archaeology was defined as a useful tool for assessing the production processes on natural aspects of material culture, explicitly unsuitable to answering “why” questions, especially those which address broad social and

cultural contexts (Hodder 1982, p. 31). This theme, which will recur in this research, is crucial: in this post-processualist formulation, experimental archaeology cannot deliver insights into the human beings of the past, their society, motivations, and lifeways, because it was interpreted by human beings in the present. The justification for this position was that, since the experiment is carried out in present-day Western society, the results are inflected with, and therefore inescapably compromised by, the assumptions and biases of this time and place. Hodder was criticizing the over-reliance by archaeologists on the **uniformitarian assumption** as described in the natural sciences¹¹. He issued an “ethical alert” to scholars, which has been of great significance to archaeology in general. This influential and useful perspective, though, has in subsequent years been misconstrued and used as a paradigmatic approach which, in turn, has been used as justification for the distancing of academic research from the field of experimental archaeology: “experimental archaeology” was too close to “the scientific ideals of processual archaeology” (Petersson & Narmo 2011 p. 29) and had to become something else¹².

Key characteristic:

over-reliance on the Uniformitarian Assumption

In other European countries, experimental archaeology often developed independently, not influenced by the trajectory or academic debates of the English-speaking world¹³. To provide one example, in Italy the discipline of experimental archaeology was part of a structured, wider conception of archaeology as a discipline with the potential to revolutionise academic archaeological research. In his pioneering works, Tiziano Mannoni¹⁴ (1983) developed what he defined at the time as “global archaeology”, something we could translate into English as an “holistic” approach. Within this framework, archaeology was considered to be “history of material culture¹⁵”, bypassing the stale conflict between Humanities and Science within archaeology. Mannoni maintained that the interpretive aspects of archaeology, and its methodologies (history), together with the materially constituted culture of the past (the material archaeological record), studied

from a holistic scientific perspective, are both essential to achieving the fullest understanding of the past. Experimental Archaeology, then, found its place in specific areas of archaeology, namely the archaeology of production. The approach of Mannoni and Giannichedda (1996, p. 58) in their work “Archaeology of Production” was to use the falsification protocol in order to resolve interpretive problems regarding archaeological artefacts. The aim of archaeology of production is to evaluate social and environmental consequences of the different production processes by considering stratigraphy, material studies, landscape archaeology, ethnoarchaeology and experimental archaeology using analogy (Mannoni & Giannichedda 1996 p. XVII)¹⁶. They also adopted an explicitly critical position towards academic culture. In their view

The division between scientific and historical-archaeological research is just an academic phenomenon.

Mannoni & Giannichedda 1996, p. 51

The same authors were highlighting the lack of standardization in experimental archaeology research activity as the cause of the separation between, on the one side, ancient technology studies and public outreach activities, and academic research on the other (Mannoni & Giannichedda 2003).

James R. Mathieu has provided an important innovative perspective in experimental archaeology meta-studies (2002, p. 1). He states that experimental archaeology, within the remits of a controllable experiment, uses the replication of phenomena “in order to generate and test hypotheses to provide or enhance analogies for archaeological interpretations”. In Mathieu’s formulation, the experimentally derived analogy is a potent aid to archaeological interpretation (as Mannoni and Giannichedda had previously noted, and many other scholars have acknowledged¹⁷). The use of analogy in this context acknowledges the generative aspect of the experimental process in hypothesis creation and testing and confirms that the experimental approach in archaeology is rooted in Popperian falsification. Mathieu (2002, pp. 7-8) goes further in differentiating first

generation experiments, in which variables are evaluated, and second-generation experiments, in which variables are actually tested.

Key characteristic:

Experimental Archaeology as generative of new hypotheses

This work adds also another important area in which experiments can be performed, those pertaining to the field of “phenomenology”, i.e., “the replication of people sensing, perceiving or feeling certain things” (Mathieu 2002 p. 4). Despite the fact that Mathieu does not make explicit the uniformitarian assumption (2002, pp. 4-5; see Comis 2003, pp. 11-12), his insights were meaningful in the following outcomes on experimental archaeology methods.

Expanding the themes and experiments categorization, the work by Yvonne M. J. Lammers-Keijsers (2005) sets up a useful protocol perspective on the experimental process in archaeology. Her work defines and determines both the phases of the experimental protocol and the distinctive cyclical aspect of the research process. In this processual, yet dynamic, proposal a hint is given regarding the reasoning processes linked with different forms of interpretation of experimental data (Lammers-Keijsers 2005, pp. 20-21).

Alan K. Outram, in a brief but fundamental contribution published in 2008, analysed the problem under the epistemological perspective of contemporary philosophy of science and gave a clear framework for experiments in archaeology starting with the “positivist” approach (Popper 1959), via the “positivist critique” of Kuhn (1962) and provided an assessment of the postmodernist “attack” by Feyerabend (1975). As well as defining the main guidelines for providing a full communication of results among scholars (pp. 4-5), he also introduces the concept of “actualistic experiments¹⁸” and attempts to bridge the understanding of laboratory experiments and actual experiments with “authentic” materials (p. 2).

This concept seems to be very similar to the so defined “contextual experiments” as devised by Marianne Rasmussen (2007, p. 11). In these experiments there are, “in contrast to a controlled experiment, many variables which all influence the experiment simultaneously”, and the aim “of contextual experiments is not to deliver a finished result but, on the contrary, to function as an “eye-opener” and as a source of inspiration, with practical experience being gained in the process” (Beck et al. 2007, p. 138). Rasmussen’s concept, thus, seems to bring together the generative aspect of experimental archaeology with specific contextual characteristics as does Outram’s, albeit on a reverse procedure: Rasmussen focuses on the open air, multiple variables, whether Outram focuses on the return to multiple variables after the laboratory experiments. This concept is particularly important for this work and will be discussed in the following chapters.

Going back to Outram’s contribution, he also stresses the uncertainties in defining the discipline:

It is perhaps unfortunate that the boundaries between experimental archaeology (a research tool), experience and demonstrations (educational and presentational tools) and re-enactment activities (a recreational pursuit) have become blurred in the minds of many. In some cases, one fears that this has coloured academic perception of a valuable approach to research. Perhaps this is why Reynolds put forward such a strong rejection of anything not truly experimental.

Outram 2008, p. 3

From this perspective, the experimental and the experiential should be distinct, at least academically, and put in a clear process/by-product relationship, especially when translated into outreach or educational activities (Outram 2008, p. 4).

During the following years, experimental archaeology has seen a wide development in different directions usually following an ancient technology trail, in which it is difficult to distinguish new apportions to the underlying specific theoretical stances (see for example:

Cattani 2016; Baena Preysler & Cuartero 2006; Shipton & Clarkson 2015; Alonso et al. 2016).

The most relevant contribution on the theoretical positions about experimental archaeology was that of Linda Hurcombe, who has focussed more than other scholars on tackling the difficult task to reconstruct the invisible, such as reconstructing organic artefacts from the traces left on the fragmented archaeological record (2007, 2008). Her reflections, directed to encompass the wider field of archaeology and taking in consideration the contribution of Intangible Heritage to the debate, opened new possible avenues for the theoretical development in the field (Hurcombe 2015; UNESCO Intangible Heritage 2003).

Recently some scholars, particularly in Scandinavia, in an attempt to “enhance the conditions for experimental archaeology so that it can also develop as a humanistic area of research, more closely related to existential perspectives of human life” (Petersson & Narmo 2011, p. 27), have expanded their experimental approach to include sensory and emotional factors within technological research. In this re-evaluation, Petersson and Narmo were trying to incorporate the “human factor” within experimental archaeology, which had been explicitly excluded by Reynolds (Petersson & Narmo 2011, p. 29), by reclaiming the existence of a “humanistic experimental archaeology”. The two Nordic¹⁹ researchers criticize any definitions of experimental archaeology which exclude the experiential aspect by considering it as “not scientific” (Petersson & Narmo 2011, p. 31), giving voice to latent dissent within the field and define a new milestone in the post-processual approach, helping to shift experimental focus in new directions. In their view, the body of the researcher is also part of the process of investigation but is not sufficiently considered in experimental activities (p. 40). While recognising that experimental archaeology activities mix the past with the present they state, in the conclusion of their paper:

It is important not to leave out any aspect of being human. Personal experiences should come along, and sensory and emotional experience should be broadly communicated

Petersson & Narmo 2011, p. 46

But how can the “human factor” be included within the process of experimental archaeology and research activities with no clear position in relation to uniformitarianism? The humanistic perspective in experimental archaeology is sometimes leaning on some forms of phenomenology or led by an instinctual approach to personal observations, leaving the reader with the question of how this information can be used reliably to interpret the archaeological record and the society that created it.

2.2.2 Discussion. Experimental archaeology contemporary practice

Experimental Archaeology deals with replicating past phenomena in the present. Hence, it mixes the “past” and the “present” in a physical setting, with the initial aim of enhancing our knowledge of the past. As a consequence, the positionality of the researcher is, as noted by the post-processualists, a crucial aspect. As such, experimental archaeology provides a perfect arena for the debate between the scientific, often quantitative, processual approach and the more interpretative and personal post-processualism. There are two quotes which can stimulate reflection when dealing with this *vexata quaestio*. The first is one from E. Giannichedda (1999, p. 19):

Experimental archaeology has a positivist, new-archaeology public soul and a post-processual private soul²⁰.

The second is by Gibbon (1989, p. 45), about the “human factor” in experimental archaeology (both for the researcher and the “researched”):

Since humans have some distinctive features like consciousness, will and reflective

abilities, they cannot be treated like stones or rabbits.

As already noted, the dichotomy between those who advocate the 'objective scientific' approach to experiment and those who advocate for the inclusion of the 'human factor' was made evident by the distrust the processualists hold for experiments which deal with "experience" rather than "knowledge". This is mirrored by the distrust the post-processualists hold against the "de-humanised" scientific and measurable experiments carried out by their opponents. One of the major issues, introduced strongly by Reynolds in 1999 and outlined above, is statistical validity: the hard sciences base validity on repeatability and comparison of results. On this basis, single trials or experiments which were not repeated as many times as statistically needed, such as those performed with a more experiential approach, are regarded as being of limited value.

A great deal of confusion arises also because each of the two cohorts follows a one-directional path that was set in the most heated time of the debate as an *aut/aut* situation, without understanding the underlying (contextual) causes for it. In other words, the discussion is always set in a contrast scheme between two irreconcilable (by definition) opposing positions (see Petersson & Narmo 2011 and Graves-Brown 2015).

The theoretical and methodological aspects of experimental archaeology within the wider field of archaeological research *tout court* will be discussed in the following chapter. There are several positions in the contemporary academic field of experimental archaeology, with some overlap but, ultimately, no shared overview (compare, for example, the approaches in O'Sullivan et al. 2014, Wyatt 2016 and Torres Navas & Baena Preysler 2014). This seemingly plurality of approaches, though, ultimately relies in an either-or approach to the processual vs post processual duality as outlined above.

To sum up the current situation, experimental archaeology seems to possess many assets within the field of contemporary archaeological research, and a certain amount of uncertainty within the academic context can be traced in the separation of "strands" of research methods, which rarely communicate with each other (as defined by Bell 2009, p. 33, the *social strand* and the *scientific strand* or, as defined by Rasmussen and cited in Beck

2011 p. 167 and p. 181, *the controlled* and *the contextual* - the latter sometimes defined also as *actual*).

Below is a scheme in which these two “strands” and their main characteristics are summarized under the analytical²¹ categories “scientific approach” and “humanistic approach”.

“SCIENTIFIC APPROACH”	“HUMANISTIC APPROACH”
Based on quantitative methods.	Based on qualitative values (methods not developed)
Analogy/ Replication	Unique experience, individual approach
Sometimes lingers more on measurements than explanations	Uses hermeneutic cycle as an explanation
Cannot justify social inference from quantitative data analysis only.	Cannot justify projection on the past without uniformitarianism (often implicit).
COMIS 2019b	

It seems that, despite the objectives of these two strands being identical, the major issue relies on the dismissal of the theoretical debate. This requires an informed confrontation between the two currents on the themes of basic philosophical assumptions and their consequent theoretical implications (and fundamentals) of those approaches.

In conclusion, despite the great potential offered by both approaches, some concepts need to be clarified and the researchers’ awareness needs to be stirred in the theoretical direction. Experimental archaeology is indeed a trial to the minds and actions of researchers as it forces different levels of reality and intellectual outcomes into a physical setting. Nonetheless, giving priority to just one aspect of reality has not proven to be useful to the advancement of knowledge. In Chapter 3 both strands will be subject to an immanent critique in order to attempt to resolve the dichotomy.

2.2.3 Experimental archaeology outside of Academia

As is made clear in Alan Outram's quote above, attempts at reaching any consensus about the meaning of the term "experimental archaeology" are further confounded by its extensive and broadly-applied usage outside of academia. In these contexts, it is mainly referred to educational activities and/or museum institutions, but also to other activities not so explicitly linked with research.

A study was performed in 2003 which was designed to provide a deeper understanding of the use of the term "experimental archaeology" in non-academic contexts in a specific European area. A second objective was to compare the emerging reality of its uses in these contexts with those encountered in academia (Northern Italy; this work is still unpublished: Comis 2003). The shift in perspective implied the use of qualitative methods of enquiry and the performing of social science-based survey techniques (public observations in open air centres and universities and in-depth semi-structured interviews with decision-makers). Results were published in a concise format and shared at international conferences some years later (see Comis 2010). Those results were meaningful, especially the shift in perspective, that ascended from the internal archaeological issues to include the public understanding and actual use of the terminology. This entailed engaging with the current actors in the relevant social contexts, such as Open-Air Museums and Academics. The observations in the field highlighted significant junctions and overlap between three main fields: education, tourism, and research. In so doing, the study seemed to confirm the observations of Reynolds and Outram previously outlined.

The activities which were labelled as "experimental archaeology" were categorized under the following descriptions (see fig. 2. 1):

- Replicas of archaeological artefacts
- Re-enactment or living history
- Experiential activities/demonstrations of ancient technology
- Simulation of production procedures
- Educational activities
- Performances



Figure 2.1 Constellation of activities labelled as “experimental archaeology”.

As it has already been observed, the archaeological record (or better, the outcomes of archaeological research in general) is *always* the starting point for all the activities which fell under the category “experimental archaeology”, even when used in a non-academic setting. If we were to describe all the activities listed above through an explicit narrative, we would affirm that archaeological data and research outcomes were used to build replicas, to reconstruct material culture for display in a first-person interpretation, to demonstrate or experience ancient technologies, to investigate archaeological interpretations of production procedures through simulation, and to aid educational programmes, or in performances and entertainment (Comis 2003). It is notable that if we compare the categories identified in this research with the academic context, only one of the above listed activities would fit within the academic conception of experimental archaeology: the simulation of production procedures, the primary objective of which is to gather more information about the processes involved in the production and use of materials and objects in the past and the alteration of them over time. In other words, the aim was to carry out research in archaeology. What is different from the other activities is

that there is an explicit purpose in gathering information, in the advancement of knowledge in the field of the interpretation of the archaeological record.

In those activities conducted outside of academia, the objectives are more focussed on the communication of the interpretation²² of archaeological research.

Experimental archaeology resulted, thus, as situated on the threshold between research and public outreach (Comis 2021a).

Key characteristic:

Experimental archaeology is situated on the threshold between research and public outreach

In fact, the presence or absence of the public in “experimental archaeology activities” is not pivotal in defining the core research aim. Research activities could be performed with the public (Hurcombe 2008, p. 107), and performative activities with the public could potentially return data for research purposes (Meylan 2013, p. 174-6; Van de Noort et al. 2014, p. 293; Stringer Clary 2018).

In the time between the study cited above (2003), and the present day, the range of activities labelled ‘experimental archaeology’ conducted outside of academia has, if anything, increased rather than decreased. In addition to Outram (2008), Paardekooper (2011, pp. 72-76), for example, enlarges the number of activities labelled as “experimental archaeology”. And, on the other hand, the perspective has also broadened within sectors of academia to now include experiential and educational activities, to name just two of the most important ones as we have seen above.

What was described as a “fracture” between academic and non-academic experimental archaeology activities conducted in museums and similar institutions (Comis 2010, p. 10), has been smoothed down but is not resolved (see for example Hurcombe & Cunningham 2016).

The root of the problem arose many years ago when activities that were actually mostly research-directed, and which gave life to pioneering centres for experimental archaeology that had an indelible impact in Europe and beyond, were labelled as “tourist attractions” (Wood & Cotton 1999, p. 28, speaking about Butser, UK, founded by Reynolds). This is just an example, and it goes to show that the potential for research to be performed in AOAMs has been irremediably tainted by misconceptions regarding the nature of experimental archaeology. Unfortunately, this misconception, which covers a simple lack of awareness in the boundaries between research methodology and communication, is still held today regarding the same institution (O’Neill & O’Sullivan 2020, p. 457). We will see in the following paragraph how this misunderstanding can affect AOAMs and what consequences it might have for research.

While the debate is far from being seriously addressed and, in some instances, exchange between researchers has actually come to a halt, the outputs of experimental archaeology in research have provided an extraordinary wealth of ways and means with which to engage the public in both educational and entertainment contexts, while simultaneously significantly expanding tourism and education activities (Stone & Planel 1999; Paardekooper 2012; Pertersson & Holtorf 2017; EXARC website). In some cases, this output has been carried out without any research agenda and is used purely for education or entertainment. Therefore, some activities linked with experimental archaeology are actually mainly *social* experiences, experienced in both individual and collective contexts. The social impact of these activities has not been sufficiently investigated by the social sciences, although many emergent theories and perspectives within archaeology point to the need for such assessments (Dima et al. 2014). In this respect, Archaeological Open-Air Museums are the locations in which this “crucible” of experiences, social activities and research is currently interfacing directly *with* the public. Archaeological Open-Air Museums are thus the ideal context for the investigation

2.3 Archaeological Open-Air Museums (AOAMs)

What is an Archaeological Open-Air Museum? In the previous section, we have reviewed the history and development of experimental archaeology and explored how it has related to general archaeological theory. In this section, we will define and describe Archaeological Open-Air Museums (AOAMs) and explain how they are significant venues and ideal conduits for communicating a variety of archaeological knowledge and concepts.

July 22nd, 2008, EXARC

An archaeological open-air museum is a non-profit permanent institution with outdoor true to scale architectural reconstructions primarily based on archaeological sources. It holds collections of intangible heritage resources and provides an interpretation of how people lived and acted in the past; this is accomplished according to sound scientific methods for the purposes of education, study and enjoyment of its visitors.

EXARC, definition page, 2008

This is the definition of an Open-Air Archaeological Museum elaborated by the international network EXARC, with the help of the EU Culture Programmes (liveARCH: Paardekooper 2012, p. 25) and acknowledged by ICOM, the International Council of Museums, in 2008. EXARC is an international network founded in 2001 which brings together individual professionals, independent researchers, crafts people, performers, educators, volunteers, associations, and institutions (mainly Museums and Academic) working, or with interests, in Archaeological Open-Air Museums, Experimental Archaeology, Ancient Technology and Interpretation techniques. The network provides the most up-to date information about these activities and institutions globally and has played a major role in monitoring and studying the AOAM phenomenon. The EXARC International Network was created to understand and collect information about AOAMs, while simultaneously providing a supportive platform for exchange and mutual growth across

Europe and beyond, bridging the gap between museum institutions, researchers, academia, volunteers, and professionals. Today, there are more than 300 such museums across Europe (EXARC Website Venues Page). Each makes use of the archaeological and historical heritage in a tangible way, in the open-air, with forms of communication²³ to the public which involve the careful interpretation of the materiality of the past through live interpretation (which includes re-enactment, living history and museum theatre). Their vocation usually involves a focus on educational activities carried out for schools, but their dynamic approach to heritage communication often includes many other activities for tourists and resident communities alike. AOAMs are not confined to Europe, but this study will focus only on the European setting (geographical boundary).

Most of them were founded in the nineteen nineties, though some were established as far back as the beginning of the nineteenth century (see Paardekooper 2012, pp. 36-67), although at that time no formal definition of their remit existed (Idem, p. 27-31).

Why were they defined so recently²⁴? It seems that in this sense they share a similar history to that of experimental archaeology. In fact, while attempts have been made to categorize them, their nature is perhaps even more elusive.

The origins of AOAMs are diverse in both time and place. Their denomination, location, scale, timeframe, management formats and levels of public involvement can have very different characteristics (Pelillo 2009, Paardekooper 2012, p. 71; EXARC Website Venues Page). Sometimes, museums that could be defined today as AOAMs, were founded with slightly different aims. For example, as ethnographic open-air museums or Skansen (Paardekooper 2008, pp. 313-5; Paardekooper 2016, pp. 53-4). In this kind of open-air museum, the primary objective was the provision of a national identity, as remains the case in Sweden (Rentzhog 2007, pp. 9-13; Paardekooper 2012, pp. 22-28).

Since they have a direct link to the archaeological record and provide the public with an "immersive sensory experience" through the use of experimental reconstructions of archaeological or historical buildings and, often, live interpretation as a communication technique, they are a "major presentation tool for archaeology". Paardekooper's 2012 survey revealed that they attract 6 to 7 million visitors per year (p. 23, *passim*).

Key characteristic:

AOAMs are a “major presentation tool for Archaeology”

(Paardekooper 2012, p. 23)

To better understand their nature, it is useful to compare them to traditional archaeological museums and outline the major differences.

2.3.1 Traditional archaeological museums and Open-Air Archaeological Museums: Numen vs Genius

Traditional archaeological museums sometimes struggle to provide the visitor with an accurate and readily intelligible depiction of the context from which the archaeological artefacts were recovered. In fact, in most cases, the actual context will have been destroyed with the stratigraphic excavation and converted into data. The materiality of the context is the most difficult aspect to communicate with abstract means to the public. Artefacts are usually displayed and showcased with priority given to their preservation, which is a fundamental purpose of traditional archaeological museums. The visitors usually stand in front of the original artefacts but are not allowed to interact with them and therefore are situated as observers. Museum studies describe the general exhibition strategy as a *numinous* experience for the visitors: the original fragments of the past, regardless of their intrinsic material value, are exhibited to convey feelings of awe (Settis 1981; Hurcombe 2007, pp. 34-35). The lighting of the museum halls provides an experience of epiphany, and the showcased object is untouchable, set within a case, as if it was an effigy of an ancient god in a religious setting. Therefore, most of the traditional archaeological museums look basically the same everywhere, regardless of their actual location. Communication of information to the visitor is usually delegated to didactic panels, to tour guides or to interactive textual or visual explanations.

In AOAMs, by contrast, there are rarely any display cabinets and the replications of the archaeological artefacts, usually integrated to show their completeness, can be touched, and experienced by all sorts of visitors, regardless of their former education (Paardekooper 2012, p. 56-57). Instead of a formal museum hall, the archaeologically derived buildings are reconstructed in full, providing a full-scale, immersive experience. There is no presupposition that visitors need to have any particular form or level of education to fully appreciate their visit. Since the reconstructed archaeological heritage is usually representative of a specific geographical area, AOAMs are generally different in character from each other, particularly when they are focussed on a specific chronology. As such, AOAMs frequently have a strong link with local identity (Paardekooper 2012, p. 280). The “unique public face” that AOAMs present offers as much to the local community as it does to tourists and other visitors (Ibidem). The experience the visitor is thus offered could convey not a *numinous* experience, but a rich encounter with a particular kind of spirit of place: a *genius loci*, inflected with a specific sense of the past (Comis 2009b, p. 18). In AOAMs, many techniques are used to engage with the public, including text, but more often museum staff or volunteers are dressed in period clothing and provide either third-person or first-person live interpretation to explain the heritage involved in the “display” of the museum “collection”. In other words, the visitor interacts dynamically with the *genius loci*, potentially even participating in a form of dialogue. Other activities, aside from those designed purely for education, engage the public through a broad spectrum of approaches; from full physical and intellectual involvement in experimental archaeology activities, to more passive involvement as an audience, in a traditional museum and/or theatrical sense. Human resources who are skilled in storytelling and public interaction, performance, and other physical activities, as well as people with expertise in ancient technology and archaeology, craft, and maintenance, are therefore essential in AOAMs and represent their most important asset (Paardekooper 2012, p. 278-9).

Key characteristic:

AOAMs are locations for a dialogue with the Genius Loci

AOAMs are therefore transcultural in their mission, since their aim is to communicate lost past cultures using a variety of means that can be easily understood by every category of visitors. This is one of the main reasons why AOAMs attract people with very diverse educational backgrounds (Masriera i Esquerra 2007). As regards the tourism potential of AOAMs:

Culture tourism is no longer the domain of an elite: museums need to prepare for a non-museum going group of tourists who usually do not visit cultural or heritage places like museums, but will do so if these museums adapt to them instead of vice versa.

Paardekooper 2012, p. 53

2.3.2 AOAMs visitors and management

During his study, Paardekooper (2012) carried out a detailed analysis of the management and visitors in this "new" kind of museum in order to evaluate their performance and to identify areas which might be improved in terms of their potential as museum and tourist attractions (pp. 66-83).

According to Paardekooper (2012, p. 23), the typical AOAM visitor seldom visits other kinds of museums. In Paardekooper's words:

Key characteristic:

"AOAMs are partly heritage and partly educational establishments: they are located somewhere between archaeological science and the public"

(Paardekooper 2012, p. 23)

Most AOAMs also share distinctive management issues. They mostly rely on external funding (mainly governmental) and carry out intensive educational programmes during the year (Paardekooper 2012 p. 107-8; 48-50). The funding issue is particularly important in this sector and the consequences are that some European AOAMs have encountered many difficulties in reaching a stable operational state. This is mirrored by the diversity in management models adopted, by the persistence of cases of “founder’s syndrome” (Block & Rosenberg 2002), by the difficulty in engaging local communities when the AOAM was founded by governmental bodies (top down, see Paardekooper 2012, p. 277), and by the opposite: the difficulty in engaging of academic or governmental bodies when the AOAM was funded by local associations (ground up). It would be useful to categorize them and try to assess common trends in their management, but since the AOAM phenomenon is spread across the globe, their specific internal management issues are determined not only by the chosen format (non-profit, institutional, private business etc), but most importantly by the national laws and regulations they must comply with in order to exist in the first place.

One crucial aspect in trying to understand key issues affecting AOAMs is the proximity of some to “real” archaeological sites. Some examples, such as Kernave in Lithuania, are UNESCO World Heritage Sites and display original archaeological artefacts in the indoor exhibition, as well as the open-air reconstructions that are located beside the archaeological site, in a nearby area where no archaeological evidence was retrieved (EXARC, Kernave Venue webpage). Others, like Guedelon in France - an ongoing “medieval” construction site placed in a formerly exhausted quarry - are located where no archaeological or historical evidence was ever recorded (EXARC, Guedelon Venue webpage). In other examples, such as Calafell in Catalunya (EXARC, Calafell Venue webpage), and Trzcinica in Poland (EXARC, Trzcinica Venue webpage; Gancarski 2012) the reconstruction was built directly on top of the archaeological remains. These few examples already point to the challenges faced in trying to determine any normative position within the heritage protection and communication laws in each country²⁵. Size is also very varied, AOAMs can extend for hectares or be very small, implying a different impact on the environment for each.

2.3.3 AOAMs: science or fiction?

Regardless of their management practices and their location, AOAMs share a major identity problem at their very root: the past that is represented is not the past as it was. Actually, and specifically for those which deal with a distant past, the “(re)constructions” are experimental trials, physical investigations on the past, not the past itself. There is inevitably a high level of hypothetical speculation in all reconstructed elements in AOAMs, which is due to the fact that the archaeological record itself is highly fragmentary and degraded and *needs* to be interpreted. There are few AOAMs where this is not the case, where the reconstructions fulfil another aim and merely represent a prop around which to mould the visitors’ experiences, and whose aim is generally edu-tainment. But, for those that were designed to represent “authentically” the long-lost physicality of the past, the same basic issues pertain as those faced by experimental archaeology. In general, all the reconstructions used in AOAMs are “fake”, they are made up, even when based on sound archaeological data, to provide a full sensory experience for visitors (Schmidt 1999; Sommer 1999, pp. 166-7; Paardekooper 2009, p. 62). So, what is the story that is being told to the public in AOAMs? Is it about the hypothetical (re)constructions or is it the “real past” as it was?

This problem could be framed within the *hermeneutics* setting, not only in the Hegelian sense, i.e., mainly concerned with interpretation *per se*, but also according to a strict etymological meaning, as a form of discourse used to *communicate* the interpretation. This latter perspective is evident in the use of the term “storytelling”, as it is used in communicating ideas about intangible heritage to the public within AOAMs *and* about activities related to experimental archaeology related activities in research institutions (O’Sullivan et al. 2014, Valenti 2006), as well as the use of the literary term “genre” in relation to experimental archaeology (Petersson 2011 p. 13).

Over time, the confusion regarding the real nature of an AOAM as a heritage institution has led to a misunderstanding of AOAMs, which have at times been flippantly criticized by Academia. This situation has had dire consequences for both the credibility of AOAMs and researchers who had prominent roles within them and has stymied any efforts

at reasoned debate about experimental archaeology itself (see Butser’s case above, 2.1.3). The legacy of these attitudes is the stigmatisation of AOAMs by some academics, who consider them merely “institutions pursuing living history” (Petersson & Narmo 2011, p. 29, with explicit reference to EXARC). This is a dramatic oversimplification that ignores a much more complex, deeper, and socially and financially meaningful reality. The theoretical root of this issue will be explored in Chapter 3.

The AOAM phenomenon is very complex and diversified across many nations. However, most, if not all, share common ground, particularly in the use of hypothetical archaeological ‘reconstructions’ and the ways in which these are communicated to the public. It is useful to search for the historical origins of this phenomenon, limited to Europe. In evaluating that history, there are two common aspects of AOAM practice that are of particular interest: the use of three-dimensional full-scale reconstructions for the general public, and the “story behind the product”, i.e., what message they were delivering.

2.3.4 The roots of the AOAMs phenomenon and the ideological bias

The use of three-dimensional static depictions of the past to engage the general public is not a recent phenomenon. Its roots can be traced as far back as the first *Exposition Universelles* in Paris at the end of the 19th century, albeit not intended as a permanent display, unlike most contemporary AOAMs. On that occasion, the past was used as a paradigmatic comparison to re-enforce the ideology of progress²⁶, especially in the *histoire de l’habitation* exhibition (Comis 2006). A series of newly designed houses, inspired by prehistoric archaeology as well as more recent examples, were constructed and displayed for the general public at the feet of the Eiffel Tower (Figg. 2. 2, 2. 3).

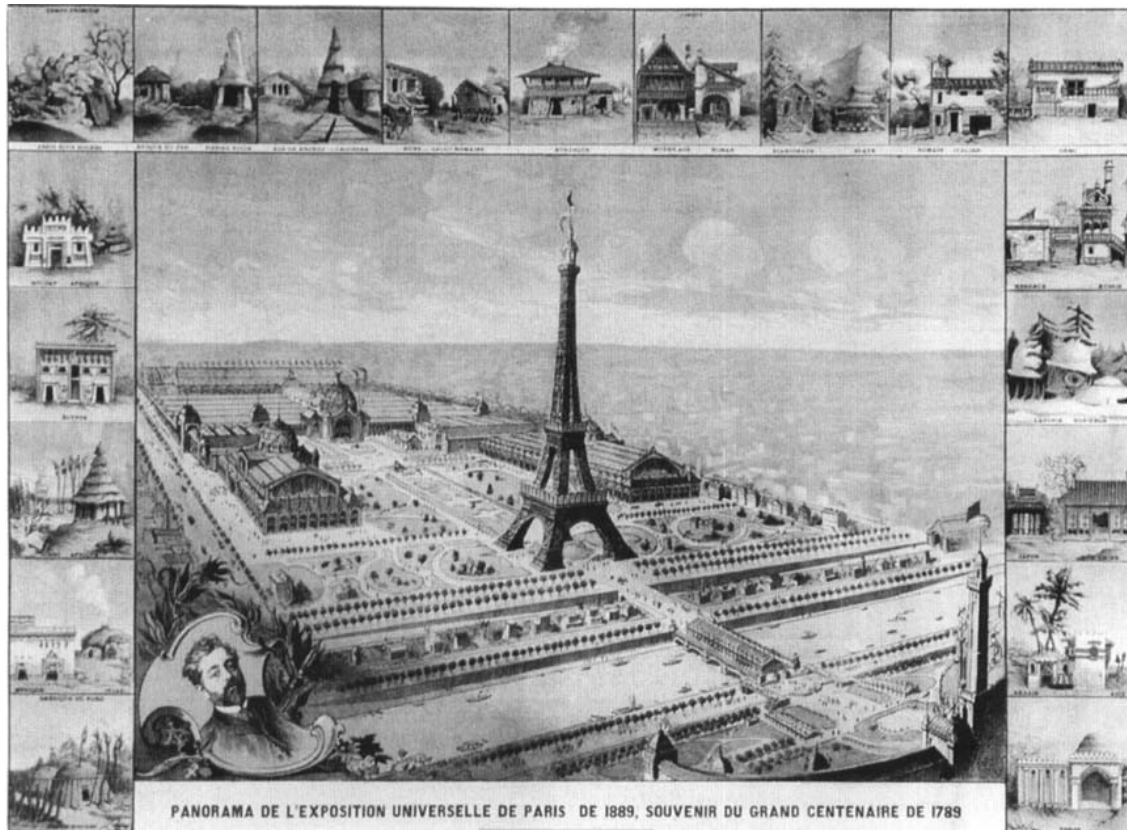


Figure 2.2 From Müller-Scheessel N. (2001), fig. 4 p. 394: “Exposition Universelle of 1889. Panorama, with the buildings of the Histoire de l’habitation at the margins. The prehistoric buildings are at the top left”.

To emphasise the paradigm of the triumph of human progress in comparison to the “primitive past”, ethnographic materials were also used in an in-door exhibition, side by side with archaeological artefacts and dioramas which represented both “primitive” labour and contemporary ethnographical group scenes featuring living, non-western societies²⁷ (Müller-Scheessel 2001, p. 397). This communication system (mixing the display of original archaeological artefacts with that of living non-Western peoples, implying the lack of cultural and technological progress by those peoples as a means of demonstrating extreme contrast with the development of modern industrialization) was then exported to the US and reached a climax in the “World’s Fairs” of the beginning of the nineteenth century. During some of them, real peoples were on display as representative of “modern savages”, and “exhibited” for the “amusement” of the public with degrading consequences (Müller-



Figure 2.3 “L'histoire de l'habitation humaine, Les demeures primitives”, original photo from the Exposition Universelles, L'Histoire de l'Habitation, Paris 1889. Brown University digital library: ID 1254161211653962.

Scheessel 2001, p. 393; Rydell 1984, p. 150). Sociologists defined what the visitors to the Fairs were shown as a “symbolic universe”: a structure of legitimation which provided meaning for social experience. This was propagated according to the government agenda and had therefore an “hegemonic function” (Rydell 1984, 2-8).

The paradigm which informed these exhibitions was underwritten by a vision of a Romantic Past (Paardekooper 2012, pp. 38-40; Trigger 2008, pp. 111-112) coupled with the Ideology of Progress (Comis 2006; Trigger 2008, pp. 145-146, 166 passim²⁸). In time, this would play a major role within political propaganda. Some of the earliest AOAMs were actually commodified or founded to fulfil the image of the superior race during the Third Reich in Germany, while occupied regions experienced a form of “colonization” of their

reconstructed past (Paardekooper 2009, p. 64; 2012, pp. 40 - 44; Schmidt 1999; Trigger 2008, p. 240-1²⁹). In other words, the national past of the occupied countries was re-written according to the ideology of the occupants. Archaeology was propaganda, and, in this respect, the link with the ancient roots of the “pure race” was made tangible and visible through house “reconstructions” and people in allegedly authentic costumes. An “easy way” to provide immediate understanding of the “bloodline” which linked the contemporary population to the “honour” of their superior ancestors (Paardekooper 2012, p. 41). It is remarkable that the history of one of those AOAMs, as illustrated by Martin Schmidt (1999), saw a cyclical return of the biased representation of the past through the years following the fall of the Third Reich (Fig. 2. 4).



Figure 2.4 The grand opening of the Oerlinghausen Open-Air Museum (DE). From Schmidt 1999, p. 148, fig. 9.1.

The persistence of biases in such a powerful way relies in the fact that three-dimensional reconstructions are fixed images and thus are difficult to update and can only

convey “basic, simple concepts” (Tattersall 1992, p. 67 as quoted in Moser 1999, p. 111; Comis 2006, p. 81).

It is remarkable that this problem is common also in other traditional museums settings: a recent EU funded research project on National Museums underlined that:

Museums have a heavy inertia due to their materiality and due to the claims that represent the perceived unchanging reality of the nation.

Aronsson & Elgenius 2011, p. 9

As a matter of fact, some national museums display reconstructions in a form similar to, if not completely comparable with, an AOAM (Araisi in Latvia: Ķencis & Kuutma 2011; Catalunya: Guiral 2011) and there are many other examples in museums which address local ethnic or folkloric heritage, providing support for a regional identity (for example the above-mentioned traditional “Skansen” museum typology, Paardekooper 2012, p. 58-60).

Some contemporary countries have developed a specific cultural policy to identify and create national identity. For example, in the UK, a former national curriculum addressed the need to foster a “Celtic” national identity among schoolchildren in specific regions of the country (Piccini 1999; Mytum 1999, p. 188; Comis 2006, p. 80). This process, though, has resulted in some cases in the creation of a “general iron age” resulting in reconstructions which are not directly linked to any archaeological excavation or real archaeological site³⁰. As such, the ultimate purpose of such reconstructions is to articulate an explicitly ideological message, simultaneously losing any authentic link to heritage. The same can be said for those AOAMs in which the link to archaeological research is not made explicit in such a way that the speculative nature of any interpretation is made clear to the public³¹.

In all the examples above, the reconstructions were created and exhibited explicitly to deliver a message. Sometimes these messages had detrimental social consequences, especially those cases in which interpretations were explicitly ideological. The power of these representations of the past is a double-edged sword. On one hand, they can resonate

with the collective psyche at a global level as the “language” used is globally understood, i.e., material culture is common in all human societies and immediately perceived regardless of former education. On the other hand, those representations are fixed and difficult to upgrade and can be easily misinterpreted by the sophistication of the underlying “history”, or, even worse, intentionally used to manipulate the collective response to obtain political or financial profit (Pelegrin 2011, quoted in Palomo et al. 2018, p. 199), with no attention to the consequences on the social fabric.

2.3.5 Experimental archaeology in the ideological setting of the world’s fairs.

As already been noted by Coles (1979, p. 26), one of the first experimental archaeology examples was displayed in the 1893 World Fair, Chicago. The reconstruction of a Viking boat based on the archaeological example found in Gokstad (see Christensen 1986) sailed across the Atlantic Ocean to Chicago from Norway. Even if the framework seemed perfectly to fit the “imitative experiment” and therefore data were obtained from excavation and a reconstruction was built, then the vessel was “trialled” in the deep waters, the replica was finally exhibited among other attractions in the World Fair. As both Coles (1979, p. 78) and Christensen (1986, pp. 68-69) observed, the “aim” of the experiment was embedded in the field of nationalistic propaganda, albeit in direct opposition to the ideology of progress (Comis 2006, p. 79-80). As a matter of factual reality, the Viking boat represented the excellence of a “primitive” technology, undermining the paradigmatic contrast past/primitive versus present/progress. Experimental Archaeology, in this specific context, has proven to have a rather potent communication potential, in direct opposition to the justification of power. Though, if this aim is not sufficiently clarified, only “those interested” could “draw their own conclusions” (Coles 1979, p. 26), as this narrative is “alternative”, hidden and not immediately perceivable.

2.4 Discussion. Experimental Archaeology and AOAMs. Issues and potentials.

2.4.1 Issues

Experimental Archaeology and AOAMs are strictly connected, as we have seen, in relationship to the use of reconstructions based on the interpretation of archaeological data. Both experimental archaeology and AOAMs are positioned in close relationship with science and public outreach, research and communication, experience and discovery. Even if their aim is basically different, as experimental archaeology as a research tool provides data for the advancement of knowledge and AOAMs on the other hand attempt to fulfil the communication of that knowledge, many points of contact and mutual enrichment are possible (Hurcombe 2007, p. 67-68).

Specifically, all the activities which are labelled as experimental archaeology outside of academia, are actually performed in AOAMs, even if the potential research outcome is scarcely communicated back to archaeology. The same can be said for purely academic work, performed in research institutions, that could have a substantial impact on the activities carried out in the communication of archaeological heritage to the public in AOAMs (Hurcombe 2008, p. 107).

All the information used to perform activities in both settings comes from archaeological research. As already pointed out:

Primary data come from research institutions such as universities and their communication or publication to a wider public. To detect what “experimental archaeology” is within the framework of research could therefore be of importance to assess the core of the problem.

Comis 2006, p.9

Regardless of the theoretical framework informing the experimental archaeology work, the purpose of an experiment is always the enhancement of knowledge: acquiring new information, falsify former hypotheses, give shape to new ways of interpretation, understand the human motive and experiential involvement in the technological process, etc. If the scientific protocol is used, there is always something to learn from an experiment, even more if the experiment “fails”. During the process of investigation, a whole series of artefacts or buildings might be produced through the imitative experiment. Therefore, experimental archaeology is used also in education and tourism: those objects or (re)constructions are an important source for those fields and can have a great appeal to the public. Archaeological Open-Air Museums are the sites in which these activities are mainly carried out.

But an experimental artefact in its physical dimension is a tool useful to archaeological interpretation. Therefore, it is a hypothesis about the past that is embodied in matter. It is a question, not a statement (Comis 2010, fig. 1, p. 9).

In AOAMs, objects and reconstructions were not necessarily planned to serve research, but to fulfil the educational mandate and sometimes used as tourist attractions. So, despite being very similar, if not identical to experimental archaeology outcomes, they are embodying a statement, not a question (Comis 2006, p. 81). It is this discrepancy, in the shift of aim from research to public outreach, that caused the difficulty between the academic world and activities in public outreach, as the terminology used was basically the same (Comis 2010), not the attribution to either processualism or post-processualism being the culprits for the distance between academia and AOAMs research through experimental archaeology.

Moreover, some of the activities labelled as “experimental archaeology” are part of the offer to the public in AOAMs *and* of the offer to students in academia, thus replicated and sold, highlighting a good deal of commodification potential and possible conflict between the two. As already pointed out,

Market laws tend to consider them as specific activities belonging to the single museums,

almost totally losing their scientific or educational values. This claim gave way in some cases to a detrimental competition among museums in which the “ownership” of specific activities is treasured to maintain the market free of competitors. This means that activities which maybe at the beginning had a firm connection with the dynamic questioning of the past are transformed into a theatrical screenplay, rigid and fixed reality. There is no space for communication of competences or of research results in this framework. Research is put to a complete halt with great loss both for the scientific community and museums themselves.

Comis 2010, p.11

This situation is also made more complex by the insertion of the terms “scientific” or “strictest scientific method”, and of “experimental archaeology activities” or “experimental archaeology presentations” in the description of the definition of AOAMs by EXARC in 2008 (website). The use of those terms was not supported by a clear view of what these terms could mean to an academic audience. The confusion about the scientific method, it must be repeated, is deep also in the academic world.

As we have seen with the dualistic perspective which opposes “science” and “humanities” in the proposal by a “new” way of making experimental archaeology, the whole field of “scientific inquiry” is discarded as “idealistic” and, as such, is not made available to the public either (see above: Petersson & Narmo 2011, pp. 28-29).

In addition, since in some instances the scientific aspect of experimental archaeology has been linked and sometimes limited to the “authenticity” of the material, rather than to the whole research process (see AOAM Definition; Comis 2021b; see the discussion in Pezzi 2017, pp. 11-14), a deviation has taken place during the years, which has gradually highlighted an actual ethical dilemma³². In experimental archaeology the “authenticity” of the materials and the technical skills is pushed further to include the depiction of the society of the past, in a way that contaminates not only the more obvious communication to the public but also the research practice itself. This practice is very common in the world of living history and re-enactment (Handler & Saxon 1988). According to this “line of

thinking”, as well as the building of a roundhouse has to be made exactly with the tree species attested in the degraded remains in the archaeological record, also the society that lived in that house needs to be communicated exactly as it was, for example, including violent aspects, women’s submission and slavery, with no regard to the impact that this can have on the visitors (and within the social community of a living history group). It seems that there are “Time Wars” going on, where the dysfunctional past is attempting to return, damaging our collective memory and our own society. This aspect, when linked with the history of both AOAMs and Experimental Archaeology and public outreach, touches a soft spot, that was described above: the result on the social fabric has not been investigated from this perspective, but we have studies which provide us with a deeper understanding of the concept of “perceived authenticity” in museums, by highlighting the marketing purpose which denotes this concept in museums (Hede et al. 2014). Obviously, if we see this from a power-related perspective, the situation seems to point out some responsibilities and again resemble a double-edged sword:

This viewpoint, while levelled against perceived commodification and ‘Disneyfication’ of the past, can easily descend into elitism and gatekeeping whereby only specific agents are permitted to weave our heritages and tell us what strands people may use.

Montgomery Ramirez 2020, p. 83

The most advanced museum communicators treat this subject with great care and high ethical standards, always considering the educational mandate in a balanced way with the acquired knowledge about past societies and by including the need for the audience to co-create meaning (Jackson & Kidd 2012; Krstović 2018). Some archaeologists tend to be very rigid on this aspect, with no foresight of the consequences: their reputation is according to them indissolubly linked with a misconception of science and can be perpetrated to reiterate unethical practices through the ages, justified as “authentic”. As a matter of fact, this tendency could also impact the researchers’ working environment which possibly unconsciously re-enact very dysfunctional behaviours such as inequality,

racism, lack of environmental care and animal mistreatment. The aspect of inequality is particularly strong in the world of experimental archaeology as pointed out in the study by Townend (2007a - but not sufficiently addressed by the relevant stakeholders in academic institutions, where the “add women and stir” approach is usually observed; Praetzelis 2011, p. 103). In other occasions, the ethical dilemma “should we consider ethical to communicate the past by re-enacting it as it actually was, regardless of the educational impact and the wellbeing of our contemporary society?” has emerged through some enlightened scholars which at least paid attention to the natural and animal world, such as the careful consideration of animal wellbeing in early medieval ploughing experiments in an AOAM in Germany (Kropp 2017).

The consequences of this friction with ethical issues both for the general public and the actors of research activities on contemporary society and individuals are not sufficiently known or investigated.

This regression has important consequences which can be observed also in higher education settings. In the context of the wider, all disciplines encompassing capitalization of academia and its consequences (Lundgren-Resentera & Kahn 2020), Archaeology is fashionably presented as a subject which is basically devoid and must be devoid of any “hard science” or methodological explicit teaching. Most of the researchers who promote one side or the other of the debate do not realize research ethics are not met. It seems there is space for disregarding the global attempt in regulating the ethics of research on one side (see the Singapore Statement for Research Integrity 2010), and on the other side - possibly more importantly-, the ethical issues regarding conflict of scholarly interest and academic freedom (European Charter for Researchers 2005, p. 11; UCD Conflict of Interest Policy 2018, 4.2) which could be useful to restore peace of mind between them.

Another issue to point out is the epistemic injustice which embeds the problem at the wider level of archaeology communication. To a certain extent, this issue is like the attempt of undermining science communication (Fricker 2010; see the discussion in Matheson & Chock 2019; Fanelli 2013) and highlights yet another necessary distinction between archaeology and communicating archaeology, together with the need to approach it with strong and shared ethical values.

In this context, therefore, the insertion of the “scientific” terminology in the description of an institution devoted to public outreach, made things even more unclear. To sum up the situation, in Paardekooper’s words, experimental archaeology

makes connections between different professions and between archaeology and the public and therefore loses its singular character.

Paardekooper 2011, p. 82

As a Scandinavian researcher has recently written:

In many ways, experimental archaeology is more appreciated as a crowd pleaser, than as an important part of research that needs to be integrated on a higher level. Even though I find it of great importance to use experimental archaeology to communicate our research and to win the general public over to support archaeology, more so do I want to stress the great advantage of using experiments to gain information about the archaeological material. We must find a middle way here.

Eigeland 2011, p. 110

If it was not enough to make the situation incredibly sophisticated and complicated, the misuse of the past in the form of physical representations, as illustrated above, is lingering on the issue as a potentially destructive threat. Since the “scientific” aspect of experimental archaeology has not been sufficiently defined or communicated and the debate is at a stalemate in research, but activities such as those used in AOAMs are performed incessantly (at least until the Covid19 outbreak), one wonders what the visitors can grasp when they engage with them (see fig. 2. 8) and what is their social impact, especially regarding the delicate area of identity (Comis 2010, p. 81; Paardekooper 2012, p. 88). In other, more explicit terms, it seems the time is ripe to address a typically Critical

Social Science research question to this field: “How are groups being used politically to perpetuate power within systems?” (Lincoln & Cannella 2009, p. 280).



■ **Fig. 7-8** The lake dwellings from the 1889 Exposition Universelle in Paris and a contemporary view of open-air museum in Europe. What are the similarities and the differences to the public? (from Müller-Scheessel 2001: 397; photo: courtesy of Annemarie Pothaar).

Figure 2.5 Similarities between 19th century reconstructions and today’s AOAMs. From Comis 2010, p. 81, fig. 7-8.

2.4.2 Potentials

To search for a solution that divides fields of meanings that overlap in the same process is for sure very useful, especially if different concepts are physically embodied in one place or one object, like an Archaeological Open-Air Museum or a reconstruction.

Comis 2010, p. 11.

A researcher might see in AOAMs a tool to acquire knowledge, a three-dimensional question mark. A visitor or a tourist might see it as a faithful representation of the past, or as a fun venue that engages and stimulates all their senses. The people who visit AOAMs can read different meanings into the representations of the past, according to factors such

as their age, provenience, education, and emotional state. AOAMs, in the words of Marianne Rasmussen:

Due to their independent status, they offer a room where the researcher, the visitor, and the professional interpreter can challenge themselves.

Rasmussen 2011, p. 147

Potentials from the Research perspective

The identification and discernment of overlapping meanings embedded in a single event is useful only if used to overcome an apparent duality. This can be achieved if we consider the areas of overlap as a matter of fact, as having the status of actual reality, and then by moving on to constructively address the issue.

From this standpoint, it seems possible to maintain the awareness of conceptual boundaries and investigate ways in which research can provide a service to broader society. As a matter of fact, the research undertaken through experimental archaeology in an AOAM is already providing a service to society and can be considered part of the third sector. Potentially, moreover, it can support and expand the educational mandate of schools and universities.

Working within this framework, Ethics in experimental archaeology research practice would be the ideal platform from which to link the researcher with public outreach. Research ethics presupposes research integrity, as such, any engagement of the researcher with the public necessitates the acknowledgement of the dangers of ideology (Singapore Statement for Research Integrity 2010, point n. 1 and n. 14; Comis 2021a). Instead of focussing on boundaries as points of discontinuity and conflict between what is science and what is not, it is possible to consider them as points of contact that could help initiate a “virtuous circle of exchange between Research, Education and Tourism that has its centre in Experimental Archaeology in Archaeological Open-Air Museums” (Comis 2010, p. 11,

quoted in Paardekooper 2012, p. 276). Since Experimental Archaeology provides a dynamic research investigation process capable of returning relevant data continuously,

Data coming from the archaeological record can be experimented and then presented to the public, but if the results of the experiments are communicated back to research institutions, the process could provide a continuous stream of information useful to produce always new activities to the public, enhancing their quality.

Comis 2010, p. 11

As previously noted, to unlock the full potential of this “virtuous cycle”, it would be necessary to resolve the dichotomies in methods within the field of research in experimental archaeology, and possibly to develop a shared terminology among all those involved (ibidem). The other aspect that is felt useful to the advancement towards a constructive relationship between AOAMs and research institutions with the creation of a virtuous cycle, is the re-evaluation of actualistic and contextual experiments (see above 2.1.1). These are also the most alluring for the participation of the public as, by attempting to reconstruct the closest settings from the past, are also very evocative.

A profitable relationship that harmonizes research, education, and tourism, moreover, must also take into account the “unmeasurable variable” represented by the more individualistic aspect of experimental archaeology. It is, in fact, essential to acknowledge the “human factor” (Deriu & Fredella 2010, p. 43) as central to the process, but with critical awareness of the possible drawbacks and effects on outcomes this factor entails. Crucially, rationality does not exclude creativity in human beings (Comis 2010, p. 12, but see also Longbottom & Butler 1999, p. 490), and, if adequately considered, the most intangible aspects of the research process in experimental archaeology could prove highly valuable at all levels of the epistemological process involved.

This thesis supports the integration of methods within experimental archaeology itself and the cyclical dynamic of the experimental process (for the latter: Lammers-Keijsers 2005).

Since this potential is relational in nature, a necessary step, after clarifying issues of methodology and having determined a common terminology within the research field, is to create and maintain a healthy channel of mutual communication between research institutions and AOAMs (Comis 2010 p. 11, fig. 3; see below fig. 2. 6).

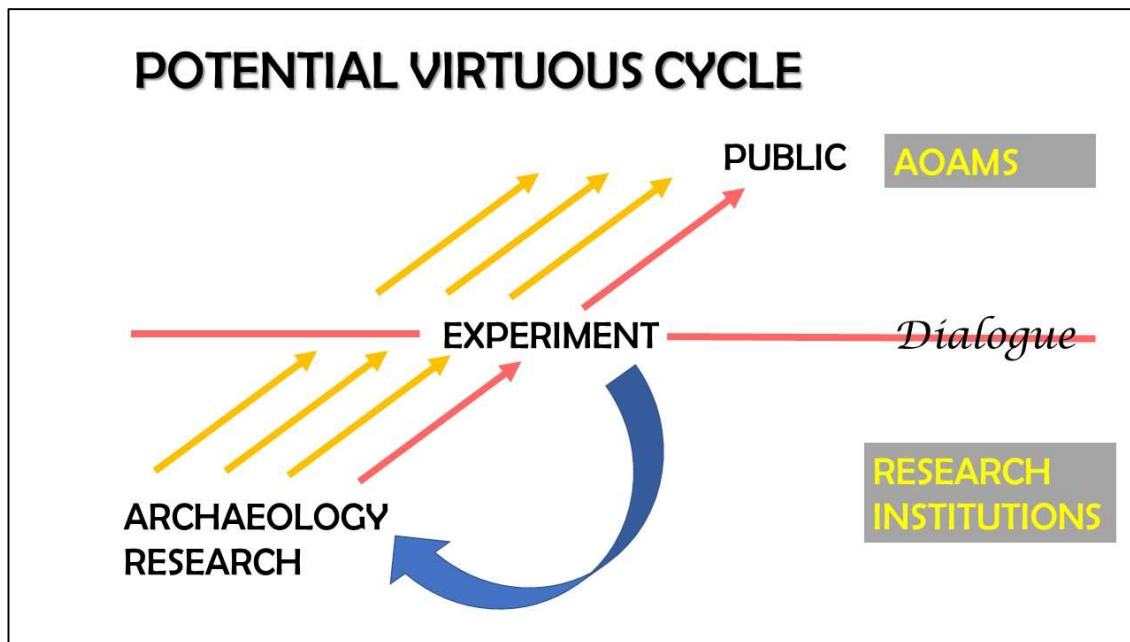


Figure 2.6 The potential virtuous cycle of exchange between AOAMs and research institutions using experimental archaeology (elaborated from Comis 2010 p. 11, fig. 3).

Potentials from the Public's perspective

This is renaissance, your dentist now an authority on butterflies and you (in retrospect this happened so pleasantly, watching clouds one afternoon) connected by Twitter to the National Weather Service. This is revolution, breaking down barriers between expert and amateur, with new collaborations across class and education. Pygmy hunters and gatherers use smartphones to document deforestation in the Congo Basin. High school students identify fossils in soils from ancient seas in upstate New York. Do-it-yourself biologists make centrifuges at home. This is falling in love with the world, and this is science, and at the risk of sounding too much an idealist, I have come to believe they are

the same thing.

Russell 2014, p. 11, cited in Henker et al. 2018, p. 1

While some scholars have judged engaging and involving the public in experimental archaeology activities as undesirable, even potentially dangerous, and others have denigrated research activities open to the public as non-academic, the converse of such putative conflicts is to view it (operating in a mirroring perspective, as above) as offering the potential for public participation in research through experimental archaeology.

While this perspective has not been developed thoroughly in this chapter, it is the case that, in some specific examples, the participation of the public in research activities through experimental archaeology is already happening in within AOAMs³³ (Heeb 2019). At very many venues, volunteers actively participate in reconstruction activities, sometimes with the explicit objective of re-integrating into society disadvantaged individuals and groups drawn from the local populace. Also, for some time now, the re-enactment movement has brought forward many amateurs to exchange their experiential knowledge with experts and specialists (Paardekooper 2017), as well as contributing actively to public outreach activities within the AOAM setting (see EXARC Members Webpage).

However, there are serious dangers inherent in the commodification of the past, as highlighted previously in the context of the XIX Century Universal Exhibitions in Europe and the World's Fairs in the US. These specific instances evidence the disturbing potential for the use of the past as a political statement, designed to embed the social experience within the remits of a strict power hegemony of class-based capitalism through the language of the "Symbolic Universe" (Rydell 1984, pp. 2-8). In Rydell's words, the apparent diversity of the World's Fairs in the US at the threshold of the 20th century, which also included the direct association of the past with living native peoples:

was inseparable from the larger constellation of ideas about race, nationality, and progress that molded the fairs into ideologically coherent "symbolic universes" confirming

and extending the authority of the country's corporate, political and scientific leadership.

Rydell 1984, pp. 2-8

The resistance of the academic world can be seen, through this perspective, as a resistance to let go of its established leadership in the moulding of the experiences of the public within the “Symbolic Universe”. Despite the recent debate on the legitimate use of specific narratives (Wylie & Watson 2008; Montgomery Ramirez 2020), it is unclear whether the world of academic archaeology is fully aware of the political and social implications of their contribution to society. An awareness of the ethics of research and the responsibility towards society would involve the transparency of the methods. In such a case, it becomes possible to consider the public not just as a mere target but constituted of potential active participants in the research process. The epistemic injustice embedded in the un-analysed delivery of pre-packed activities that are intrinsically loaded with cultural paradigms could therefore be transformed in an active co-creation of meaning and ultimately of knowledge (Comis 2006, p. 81). Moreover, it has been already noted that museum settings, being principally concerned with educational aims, could help engender positive attitudes and behaviours for the benefit of society and the environment, if the offer to the public is designed to transform the visitors into “mindful visitors” (Moscardo 1996). The delivery of the UNESCO Sustainable Development Goals (SDGs 2016) has in fact provided a real framework for this to happen.

One of the major tools that is used nowadays in the field of participatory research is Citizen Science, which also intersects with Participatory Science and Crowdsourcing (Strasser 2019, p. 270). There is a wide array of examples of Citizen Science, such as those mentioned in the opening of this paragraph. It has as explicit aims not only the active participation of non-experts in the research process³⁴, but also the enhancement of policy decision making and “implementations in the long term” for society (Henker et al. 2018, p. 2; Strasser et al. 2018, p. 2). Significantly, Citizen Science approaches could potentially embed public science and archaeology, community of practices and so forth, to direct the output in clear policy implementation. The development of participatory forms of science

have stirred the established structure of knowledge production, by “joining the epistemological with the political” (Strasser et al. 2018, p. 2).

Ultimately, if the wall between the research process itself and the public could be dismantled through the use of ethical experimental archaeology with citizen science protocols, the empowerment of the public/visitor could lead, on one hand, to the empowerment of individuals, together with researchers, in the creation of a symbolic universe, on the other it could enhance tremendously the input for a more sustainable and meaningful research practice for the benefit of all.

These two potentials: virtuous cycle and Citizen Science will be used as the overall working hypothesis for detecting best practices in this exploratory study.

Working hypothesis for Best Practices in Experimental Archaeology:

Virtuous Cycle: ongoing dialogue between AOAMs and Academia using Ethical Research Practices in Experimental Archaeology.

Citizen Science protocols to both involve and engage visitors and the public in understanding scientific literacy and in acquiring critical thinking.

2.4.3 Research questions in this study

After having examined both the issues around and the potential of interaction between experimental archaeology and AOAMs, it is possible to assess which research questions are needed to perform this study.

Rather than superimposing a concept on reality, it would be useful to detect which trends are current, both in research through experimental archaeology in academic or non-academic contexts and in the experimental archaeology practice in AOAMs (Glaser 2001). This could help in identifying the internal conceptual guidelines which exists in the field. Within this context, these are the major questions to be addressed:

1. **how is research involved in the process? is it communicated at all?** In other words, what happens to research and researchers, and visitors and individuals when they engage actively or passively in any of the so-called “experimental archaeology activities”?
2. Are researchers aware of the **ethical issues** involved in their activities?
3. Are they aware of their positionality and their **social responsibility**? Do they have **research ethics protocols** to share with the wider scientific community?

Secondarily, since experimental archaeology is widely practiced in AOAMs, it would be useful to assess what is happening across Europe.

4. **Is there an example of a positive dialogue between research practice in experimental archaeology and AOAMs?** This would be very useful to detect, in order to clarify the social aspect of the issue, viz if the visitors realise the difference between an ideological message and a by-product of real research into the reality of the past.

5. **Are there any best practices in Experimental Archaeology in AOAMs?**

The latter question for this section is aimed at investigating the existence of a positive model of dialogue between Experimental Archaeology and AOAMs. When detected, this model can be extracted and re-shaped. This would allow the sharing of the model through the international network EXARC so that the quality of the overall situation could be enhanced.

Finally, the last research question deals with investigating the potential for Citizen Science approaches within the remits of this study, both in the settings of research institutions and in AOAMs, as a means to expand the potential for mutual communication and the enhancement of the social relevance of experimental archaeology.

6. **Are those best practices apt to be transformed into coherent Citizen Science Projects?**

The following chapter will analyse the opportunities to identify and stabilize a theoretical framework in Experimental Archaeology. Subsequently, the theoretical framework needed to perform this study will be outlined, in order to obtain a robust methodology for meeting the aims and objectives described above.

¹ This attitude reflects nicely a purely gnoseological question, that of determining boundaries of disciplines in order to justify their existence which is rooted in ancient western philosophy.

² It would indeed be very interesting to perform a retrospective study based on a qualitative analysis of the literature in experimental archaeology (including practical papers) through the years. The key concepts could be seen from a chronological perspective in their evolution, possibly clarifying the complexity of the semantic node “experimental archaeology”. This project would need to rely on a team of specialists and would need to be carried out on a long period of time to be effective.

³ As already noted, this work meets one of its limits here. It would have been very interesting to perform an overall, international study which could cover the “grey literature” existing in experimental archaeology, i.e., those scholars whose work is not “mainstream”, but who influenced the practice of experimental archaeology at a national level. Unfortunately, this was not possible in the remits of this inquiry, and the sources selected for this account have been mainly collected from the English-speaking world and following the “definition”, gnoseological thread.

⁴ The attention to the concept of “experiment” is a traditional topic in publications on experimental archaeology. This approach follows this tradition, which apparently must be pursued much longer for the concept to be absorbed by archaeology scholars.

⁵ It would be extremely interesting to delve in the subject of experiment in the philosophy of science and compare it to the evolution of experimental archaeology from an epistemological perspective (see Chapter 3). Here it must be noted that early works on experimental archaeology were pointing out the need for a methodological structure in order to develop the potential of “imitative experiments” only (Ascher 1961, p. 794). I am considering here primarily the experiments which are carried out with tangible materials. Thought experiments, as considered by Ascher (1961, p. 793) based on Benjamin’s works, will be not considered in this work.

⁶ But also in the social sciences: see the discussion in van Witteloostuijn 2016.

⁷ Some prefer to cite the work of Galileo, as he pioneered a specific aspect of epistemology related to experimental observation. But science has reached interesting perspectives in contemporary research, and it is somehow a missed opportunity for archaeology to reflect on the developments of science in the experimental epistemologies and their consequences on knowledge as a whole. But, if not even the concept of Popperian falsification has been absorbed by archaeology scholars, the attempt to being stimulated by more complex concepts such as quantum probability would be a failure, despite the utter relevance to the subject.

⁸ They actually specify, in their preface, that the “experiment” they refer to cannot be assimilated to any hard science experiment, and they affirm that in their point of view: “experiment in the social sciences, which include anthropology and its subdiscipline archaeology, [is] simply a systematic approach to the explication of data” (Ingersoll and Macdonald 1977, p. ix). See discussion about archaeology as a social science in Chapter 3.

⁹ Despite a shallow criticism on the work of Reynolds by recent contributions and the constant mistrust given to “scientific experimental archaeology”, it has to be noted that in many ways the fulfilment list developed by Reynolds is nothing less than an ethical protocol in scientific research. The bias towards changing the protocol during the experiment to obtain “positive results”, i.e., to validate the initial hypothesis, is untenable in science. This is true in every experiment and has been ratified with the Singapore Statement of Research Integrity (2010). See Chapter 3.

¹⁰ Ian Hodder’s work is extremely interesting and sharply focused on the liveliest currents in archaeology since his early contributions. Here, only his initial works are cited in relation to experimental archaeology as the philosophical framework adopted in this thesis excludes his latest deterministic approaches (see Hodder 2012 and the critique by Wallace 2011).

¹¹ Uniformitarianism, as utilized in this thesis, is used in a translated form from the original Geology meaning. When the concept was developed, it suggested that “geologic processes acted in the same manner and with essentially the same intensity in the past as they do in the present” (Encyclopedia Britannica, *ad vocem*). Seen from an earth science perspective, this implied that “the present is the key to the past” (ibidem). In archaeology, the uniformitarian assumption is applied also to human agency and motive. In other terms, present humans are basically the same as the ones who lived in the past and thus

can produce reliable interpretations about the past in their present time. See the in-depth discussion of uniformitarian assumptions in archaeology in relation to the exclusive use of analogy as a tool to interpret the archaeological record in Lin et al. 2018. This theme will be developed further in the following chapter.

¹² It is rather peculiar that this ethical call has been interpreted as being processual archaeology (Petersson & Narmo 2011, p. 29).

¹³ As previously noted, this work is limited to European Studies. Even so, one cannot avoid mentioning functional studies in which experimental archaeology was just one side of the overall methodology carried out in Russia. The seminal work by S.A. Semenov (English translation: 1964) gave birth to traceology and it is remarkable to notice the scarcity of citations of his work in English speaking scholars (one exception is Hurcombe 2007). Possibly this is due to the stigma put by English speaking academia on any derivation from Marxist studies? The work of Semenov was fundamental in the development of experimental archaeology and its methods in the 1960s especially in France and Spain (Palomo et al. 2018) and had wider impact on archaeology as a whole (see Longo, Skakun 2008). Some important work was done at international level at conferences in the 1980s. One very good example is the conference held at the Archeodrome of Baune (FR) in 1988 which brought together scholars from all parts of Europe in an AOAM, once again confirming the strong bounding between these two phenomena (see Archeodrome 1988). For single countries development, a long- and well-established tradition exists in the German speaking world in which a national network (EXAR) on the topic exists. Check the Experimentelle Archäologie in Europa Bilanz series, a bulletin which constitutes a reference for those countries and includes contributions from other parts of Europe, for example the Polish ones (e.g., Grossman & Piotrowsky 2011). For a recent contribution on the history of experimental archaeology in some European countries, see Reeves Flores & Paardekooper 2014. For a more up-to-date view on the multifaceted world of experimental archaeology as research and practice and AOAMs, check EXARC's publications and website.

¹⁴ See Caballero Zoreda 2010 for a summary of Tiziano Mannoni's multifaceted and deeply innovative academic and research work.

¹⁵ This reflects the earlier Russian definition of Archaeology as "History of Material Culture" in the Academy of Sciences (Vila-Mitjá 1981, p. ii).

¹⁶ The attention the scholars set on the relationship between human beings and between human beings and objects in some ways were anticipating some of the more recent works by Hodder (2012).

¹⁷ The use of "analogic reasoning" is also at the base of Rasmussen's work in experimental archaeology (2007, pp. 10-12) based on functional studies. Analogy in relation to experimental archaeology has been particularly treated by those scholars coming from the American tradition, especially following the work of Binford and Wylie, such as Domínguez-Rodrigo 2008. In his work, analogies are discussed in detail in the experimental process and several assumptions are described for the analysis of experimental work done on bone cut-marks. Previously, Hurcombe had treated analogy in regard to archaeology as a whole, delineating the difficult confrontation with the uniformitarian assumption but leaving space for further debate on the theme (Hurcombe 2007, pp. 60-65).

¹⁸ The concept of actualistic experiments as devised by Outram involves the return to the field after the laboratory experiments to "investigate activities that might have happened in the past using the methods and materials that would actually be available" (Outram 2008 p. 2). See Chapter 6.

¹⁹ This definition is self-given. Scholars who contributed to the cited work were mainly from Sweden and Denmark.

²⁰ Translated from Italian.

²¹ These are analytical categories: they are not meant to represent all the realities in experimental archaeology, so they do not represent normative categories but on the contrary are used to group the trends for further analysis. See Strasser 2019, p. 255.

²² Singapore Statement for Research Integrity 2010, point 5.

²³ The focus of the thesis is set on the research aspect of experimental archaeology targeting archaeological interpretation issues, not communication of results or outreach activities (all the thesis). See, in any case, paragraphs 2.2.3, 2.3.3, 2.4.1, 4.2, 4.4, 4.7, 6.4, 7.4 and relative endnotes on the phenomenon, especially endnote 2.30.

²⁴ It has to be clarified that some AOAMs are rarely considered "museums" in a traditional sense. Since the application of New Museology (Mayrand 1985; McCall & Gray 2014), some were referred to as ecomuseums.

²⁵ This theme is particularly relevant as it touches the inherent need for heritage preservation, with different outcomes and positions according to the political context. See the interesting discussion in the

Lara Comis – Exploring the uses of Experimental Archaeology in European AOAMs – a critical study.

EXARC Journal (Reconstructions in situ 2012). The study of a critical case for Ireland (see Appendix n. 1) highlighted how this aspect entailed important consequences on the future of the AOAM.

²⁶ In Praetzelis' words: "[Spencer] was one of the people who applied Charles Darwin's idea of biological adaptation to human society. Only he saw it as progress from lower forms of society to higher forms. The lower ones were simpler, and the higher ones were more complex. He came up with the idea of the "survival of the fittest", not Darwin. And he thought that natural selection would just naturally lead in a kind of step-by-step way, to societies that were more advanced than the ones that came before" (Praetzelis 2011, p. 137). But see also the deeper analysis done by Trigger who specifies the fundamental contribution of Lubbock and others in this narrative (2008) chapters 4, 5, 6.

²⁷ The full-scale creative interpretations of the houses, designed by the architect C. Garnier, and the dioramas in the indoor exhibition were quite successful. The "history of labour" comprised also the exhibition of collection of prehistoric archaeological material and was considered to be a success by most anthropologists at the time. In Müller-Scheesseel's words: "the prehistoric exhibit functioned as a scale to show how far exactly those "savages" lagged behind European civilization. The differences appeared objective and measurable by translating them at the same time into both the abstract temporal dimension of archaeological time and the tangible spatial dimension of the exhibition layout. Thus, prehistoric archaeology helped to underpin a racism based on cultural differences" (2001, p. 399-400). In the author's perspective, three were the ideologies which archaeological objects depended upon: progress, racism and nationalism. Unfortunately, these ideologies were shaped by archaeology itself in the context of the *Expositions Universelles* (Müller-Scheesseel 2001, p. 400).

²⁸ Trigger, in his "A History of Archaeological Thought" defines precisely this aspect as "the belief in unilinear cultural evolution". This belief led some archaeologists at the end of the XIX century to an "unilinear evolutionism [which] led them to believe that ethnology revealed almost everything they wished to know about prehistoric times" (2008, p. 166). This "Unilinear evolutionism" is one of the causes which led a racist narrative to be threaded into the archaeological discourse, up to the times of the Third Reich (ibidem, pp. 166-210).

²⁹ It must be noted that Trigger dismisses the Nazism misuse of archaeology in political propaganda in his "History of Archaeological Thought" by devoting very few pages to this phenomenon. The link from evolutionary archaeology and what he defines as "Cultural-Historical" archaeology was probably clearer in the communication of archaeology itself as a tool for propaganda, something which for some reason this scholar has not deemed useful to confront.

³⁰ See the humorous article by Townend (2007b).

³¹ This has major and scarcely explored outcomes in social life. For example, referring again to the racist hidden agenda of the aforementioned examples, some satellite phenomena happening around AOAMs and related activities, like re-enactment, are sometimes linked with racial discrimination. These phenomena should be more accurately monitored by social scientists, both for the external political exploitation and social internal issues.

³² Which has been noted but not defined as such explicitly (Montgomery Ramirez 2020, p. 80-83).

³³ One of the latest examples has been performed in Butser Ancient Farm with the aid of military veterans and was focussed on the interpretive reconstruction of a Bronze age dwelling as well as to increase wellbeing. See Butser Ancient Farm Blog page about the project where constant update is given.

³⁴ Despite what might seem from a superficial perspective, this form of research process which involved amateurs was well established at the time of the birth of the social role of "the scientist" and was gradually abandoned until a revival in recent years. See Strasser 2019, Strasser et al. 2018, pp- 7-11.

Once upon a time, there was a village at the foot of a mountain. The people who lived there were very different from each other, but everyone made their living. Even so, discord reigned in the village. The villagers could not agree on anything, and they would quarrel and disagree about every little thing. If some of them achieved something good, he believed that that was the best way to do something and would quarrel with anyone who thought differently. They were always shouting and having fights, but one day they grew tired of it all. One old blind man, who never said a word and usually sat calmly drinking his coffee while all the other men quarrelled, laughed one day at their discord. They grew angry with him and said to him: “Oh, old man, why are you laughing? We challenge you! Tell us which of us is right! Tell us what the truth is!”.

The old man accepted the challenge and arranged to meet them at his place the day after. The men were curious and went to his place. He was waiting in front of his house and told them: “Inside my house it is dark, as I am blind. I invite you all to enter the dark hall. Inside the hall there is a mysterious animal. Go inside and familiarize yourself with this animal, then come out and describe it to me and I will tell you what the truth is and who is right”.

The men entered the dark room and after a while they returned to the old man. He asked them: “So what does this animal look like?”. One man replied: “oh I felt it really well. It is a big solid column, and nothing can move it”. Another one, hearing this, stepped forward: “what are you talking about? It is like a big fan, and it moves back and forth!”. Another one said, “you are both wrong, it is a smooth and tapered being!”. After a little while, they were all arguing again with each other, and the old man laughed at them. “Don’t you want to know which of you is right?”. The villagers, tired of quarrelling, answered “yes! Tell us the truth!”. The old man said: “Every single one of you is right”. “What? It is impossible!” they snapped.

In answer, the man went inside the house and returned, bringing with him the mysterious animal. A majestic Elephant was standing in front of them.

“It is an Elephant. No one of you was wrong, truth is indivisible. And sometimes it is bigger than we think and cannot be known by one individual’s perceptions only”.

Elaborated from Körner & Kübler 1994, pp. 35-41

3

Theoretical Modelling – Time Crystals

3.1 Introduction

Archaeology increasingly and very properly adapts and adopts the methods of natural science and unblushingly seeks its aid.

M. Wheeler 1954, p. 229

This research is situated on a crossroad between very different pathways. The diversity of approaches traditionally used in dealing with experimental archaeology and Archaeological Open-Air Museums (AOAMS) evidences a lack of a common research strategy in the field. As a consequence, there is a methodological, therefore epistemological (or better gnoseological) and ontological background issue that will be discussed in this chapter. The objective is to create an internal consistency within the framework of this research by assessing what experimental archaeology *is*. This is not merely to stick yet another label on the subject, but to develop a defined perspective on

the problem, and so create a consistent frame to start from and to expand upon during the study; one that can be tested axially through the use of appropriate methodologies.

The focus on AOAMs can be set within the perspective of museum studies and heritage management, and thus can count on a considerable amount of literature, methodologies, and epistemologies. By contrast, the focus on experimental archaeology is set on cloudy principles and doubts remain as to what is its correct positioning. Therefore, as we have seen in the Chapter 2, the theoretical framework of Experimental Archaeology needs to be stabilized and set within the wider context of archaeological theory. This is critical, as one of the basic assumptions of this study is that experimental archaeology is part of the broader discipline of archaeology in a complete and comprehensive way (see 2.1). In addition, since this study deals with the present day, it also needs to locate its boundaries within the theoretical framework of social science research. Therefore, it was necessary to deepen the understanding of different levels of theoretical frameworks for each of them and to *triangulate* them to an increasing measure of detail.

The first step implied assessing an adequate social science methodology for designing the general research strategy of this study. Therefore, it was necessary to assess the theoretical and methodological positioning of archaeology within the social sciences. The consequent in-depth analysis dealt with experimental archaeology as research and its methods. In this part, a comparative inquiry was carried out between experimental archaeology and selected social science methodologies. As we will see, yet another shift of perspective here was encountered, and experimental archaeology was confronted with the history of science and interrelated to Citizen Science. After detecting the theoretical framework for this work, a new general theoretical framework for experimental archaeology was developed in order to create a solid base on which to set the internal frame of reference for the entire study on the field. Finally, it was possible to apply the overall theoretical framework to the research strategy and develop the method for this work (see Chapter 1).

3.2 Theoretically framing the issue: archaeology and the social sciences. Parallels and differences.

Archaeology deals with the physical remains of the past, but it is about people.

Hurcombe 2007, p. 1

Is Archaeology a Social Science? The view that is typically advanced in this perspective is that Archaeology, considered as a multidisciplinary approach to the study of the past, makes a perfect use of the “new” scientific methods and diagnostic technologies, specifically quantitative methods of research, to draw inference about changes in past human societies¹. If we consider a recent publication, which claims that archaeology is a social science, we find that only the quantitative aspect of research in archaeology is considered, intersected with the natural, hard sciences and their methodologies² (Smith et al. 2012). No information is given as to *how* the “social” inferences extracted from the archaeological record have been driven from quantitative analysis, as is the case with most of the experimental archaeology papers and studies.

Since drawing inferences on past societies is the purpose of archaeology, this issue is crucial. Therefore, the validity of archaeology as a proper tool to understand past societies relies entirely upon the theoretical frameworks and the methodologies used to bridge the past and the present in form of understanding. And yet, this path from the archaeological record to a reliable interpretation seems to be somewhat unclear, even for archaeologists themselves. One of the most evident outcomes of this confusion is the unfavourable critique of archaeology by mainstream communication regarding the “mysteries” of the past and the consequent proliferation of “unconventional” interpretations of the archaeological record, drawing in aliens and extra-terrestrial civilizations (see Bond 2018)³.

The wider field of the social sciences has dealt with a similar issue, albeit without such prominence in mainstream media. To summarize, the very basic concept of acquiring knowledge about our society (present or past) in general is debated. The reasons for this are particularly interesting if compared to the problems in archaeology:

[...] the reason of this state of affairs is that social phenomena are mind-dependent in a way that chemical elements and rocks are not, and as such do not represent themselves directly into the senses. Thus, before social scientist can even “see” what they are studying they must make a number of philosophical assumptions about the mind that are easily contested by those who would make different ones.

Wendt 2015, p. 2

The expression of this issue in the social science is reflecting closely the view that Gibbon put forward concerning the problem of explanation in archaeology, as quoted above in the second chapter (paragraph 2.2.2). The archaeologist, as one who attempts to draw information from the past, is dealing in fact with similar problems as are faced in contemporary social science, with one major difference. The society that created the material culture the archaeologist is studying, and which transformed the environment in which it lived, thus producing⁴ the archaeological stratigraphy that provides the context for the retrieved material culture, is not there anymore. This “absence”, which has ontological weight, has been discussed in the wider field of archaeological theory and will be discussed below.

Dealing with material culture has the great advantage of making it possible to measure and analyse in the materiality of the past in a variety of ways; whether it be either soil samples, pot-sherds, or comparable measurable “things”. Thus, Archaeology, in this perspective, *is* Science (or it should be – Renfrew & Bhan 2016, p. 13). The achievement of this milestone, fruit of the so-called processual revolution in archaeological methods in the 1960s, is still considered to be a vital attribute of contemporary archaeology and remains to the fore in publications dealing with archaeology as a social science; as if the credibility of archaeology measured against other research disciplines was still an issue to be addressed solely from a “scientific” perspective. The perception that archaeology still needs to justify itself on these terms explains the lingering of these themes, a situation that is mirrored in social science debates.

As hinted in the second chapter when dealing with experimental archaeology development, in the late 1980s a major crisis hit this hard science perspective of archaeology. The objects and the materiality of the past with which the archaeologist is confronted are not whole or have been inevitably changed in nature by time's unforgiving action. In other words, they are decayed fragments. We can measure them as long as we want, they still will be incomplete and dead. If we were to use a semantic (and sometimes hermeneutic) metaphor to describe the action of the archaeologist dealing with the past we might consider primary data as single letters here and there, never as complete words or sentences (and not, as Hodder has proposed, simply as a written text to be read, once the "grammar" is known; Hodder 1986, pp. 125-127; 1999, pp. 32-33). Another apt metaphor is that of the jigsaw. Archaeologists are trying to complete a multiple layered, gigantic jigsaw, and one little piece at the time, without the possibility of accessing the whole reference picture as a guide. How is it therefore possible for a researcher to "read⁵" the past from such a fragmented document? How is it possible to try and reconstruct the jigsaw of the past without picturing ourselves a guiding image, fruit surely of scientific research, but also of our own perceptions, imagination and sometimes pre-conceptions?

Historical, retrospective studies, moreover, stressed the fundamental importance of commodification of archaeological heritage and artefacts or simply put, the use of ideologies through archaeology in the justification of power (Trigger 2008, p. 3). The misuse of archaeology has had grave, undeniable significance in recent history, demanding a clear awareness of the researcher's positionality and mapping a crucial link between power dynamics and archaeology, as highlighted in Chapter 2 (paragraph 2.3.4).

In the eighties a fierce debate (see fig. 3. 1) rose out of the two clashing perspectives of positivist (or processual) and post-positivist (post-modern or post-processual) ideas in archaeology. The importance of addressing the interpretative position of the researcher in relation to the past (which could be considered analogue to the positionality of the researcher in the social sciences), has sometimes resulted in a total rejection of the "traditional" scientific approach. This in turn has led to a relativization of the whole process of research in archaeology, leading the archaeologists themselves to assert that they, and not the past, were the only object of research. It is the present of the researcher in

relationship with the imagined (at best, interpreted) past that becomes the subject of research (see Wallace's critique of the Hermeneutic cycle: 2011, pp. 30-32; pp. 39-41; pp. 94-97; pp. 116-117). Outcomes in contemporary society tend to be discouraged and kept on a very individual level to avoid interpretation responsibilities (and, sometimes, to avoid academic debate)⁶.

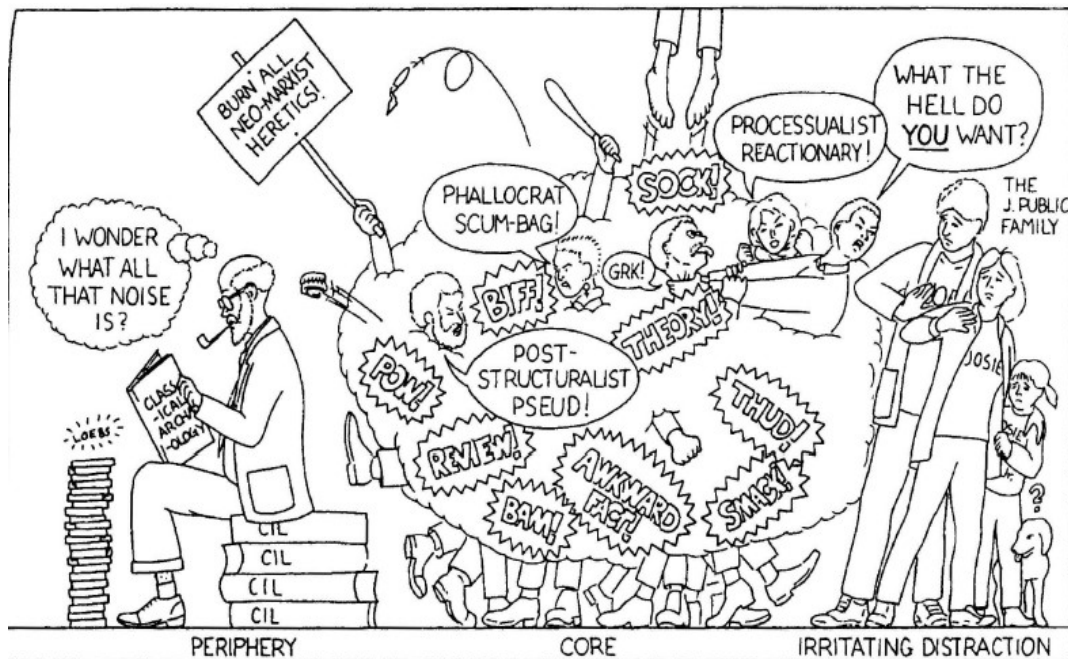


Figure 3.1 The core of the theoretical debate in Archaeology in the eighties. Original artwork: *Archaeological Theory in 1988*, by Simon James (from Giannichedda 2002, p. 88).

On the other hand, a rigorous processual, strictly scientific archaeology approach tends to lose interpretative potential when confronted with the “unmeasurable variable”, i.e., human behaviour, sometimes consciously so (see the “humanistic approach” in Chapter 2, paragraph 2.2.1).

The same kind of struggle was also present in the field of social and behavioural sciences, where the so defined “Paradigms Wars” (Tashakkori & Teddlie 1998 p. 1) drew a hard line between what was defined as the positivist/empiricist approach and the constructivist/phenomenological approach⁷. It has to be stated that the paradigmatic first level of this conflict, between opposing ends of mutually exclusive polarities, has a second

dogmatic level in duality itself, and the resulting incapacity for discerning overlapping of realities. In terms of a methodological framework in the social sciences, this conflict resulted in an open conflict between quantitative and qualitative methods of enquiry. As recent studies in mixed methodological approaches in the social sciences have shown, the “construction and promotion of a paradigm incompatibility” that took place between the 1970s and the 1980s has its bases in ontological divergences (Bazeley 2018, p. 5). The so-called paradigm wars in the field of social science methodologies are very similar to the theoretical debate encountered in archaeology (see Tashakkori & Teddlie 1998, p. 11; Bazeley 2018, pp. 5- 6). Some of the descriptions of these wars, which were born after the two contrasting paradigms of positivism and post-positivism were established by paradigm “purists”, could readily be assumed to have been written by archaeology scholars:

One approach takes a subject-object position in the relationship to subject matter; the other takes a subject-subject position. One separates facts and values, while the other sees them as inextricably mixed. One searches for laws, and the other seeks understanding. These positions do not seem compatible.

Smith 1983, p. 12, as quoted in Tashakkori & Teddlie 1998, p. 11

Fortunately, at least in the social sciences, a step forward was made in order to overcome this dichotomy, by attempting to bridge the divide utilizing a pragmatic approach to research. As Bazeley points out, this pragmatism was not new in the field of the social sciences. It has gained attention and structure starting from the last decades of the 20th century onwards (Bazeley 2018, p. 5).

Overcoming dichotomies:

Paradigm relativism in the Social Sciences: shift from paradigm to pragmatism

Archaeology could benefit from the study of this social science methodological structure. Some attempts in this respect, albeit limited to the philosophical underpinnings, have contributed to the archaeological debate in general and have had interesting outcomes when applied to experimental archaeology methodology in particular (Schenk 2015, pp. 113-7).

The emergence of pragmatic positions within the social sciences has eased conflict, although it is still present and somehow hindering multi and inter-disciplinary approaches (Bazeley 2018, p. 5), and the use of mixed methodologies is no longer a heresy:

Many active theorists and researchers have adopted the tenets of paradigm relativism, or the use of whatever philosophical and/or methodological approach works for the particular research problem under study.

Tashakkori & Teddlie 1998, p. 4-5

In other words, the pragmatic approach allows qualitative and quantitative approaches within the same study, used in a variety of different combinations. This choice is possible if the principle of the **underdetermination of theory by fact** is held to be true: any given set of data can be explained by many theories (Reichardt & Rallis 1994, p. 88 as quoted in Tashakkori & Teddlie 1998, p. 13; Gibbs 2018, p. xiii; Saldaña 2016, p. 3; see Flyvbjerg 2006 below).

Underdetermination of theory by fact:

Any set of data can be explained by many theories.

For example, the use of both quantitative and qualitative methods reinforces the convergence of the point of inquiry, rather than weakening it. Also, when adequately planned in a sequential way and using triangulation methods, such a method increases the general internal validity (Denzin 1978).

Even if the problem was approached methodologically with a simultaneous use of the two opposing paradigms, the foundations of the problem are still relevant in the social sciences and are even more crude in archaeology. These foundations lay in the underlying ontology used by researchers and in the consequent considerations of causality (Tashakkori & Teddlie 1998, p. 27) which inevitably have epistemological consequences (Bazeley 2018, p. 13-14). The pragmatic approach acknowledges the existence of an external world independent of our minds, but also denies that truth can be determined once and for all, while constructivists believe that all entities are simultaneously shaping each other, and it is impossible to distinguish causes from effects (Tashakkori & Teddlie 1998, p. 28). In other words, the conflicting paradigms have an underlying cause of conflict characterised by an ontological nature (Bazeley 2018, p. 14). Undoubtedly, the use of quantitative versus qualitative methods has been related to the opposite ends of the theoretical debate, namely the positivist position and the post-positivist or interpretative position. In some instances, this issue has led to arguments about the reasoning process implied in the methods, i.e., deductive processes or inductive processes (Bazeley 2018, p. 14). A watershed among researchers, again highlighted by Bazeley (ibidem), came from the work of Khun (1970) resulting in different outcomes on self-reflection about methodological issues. It is at this point that the same issues about implicit assumptions stand out in the Social Sciences as they do in Archaeology (Wallace 2011, p. 10) and Experimental Archaeology alike.

The strong internal conflict within the discipline of archaeology is indeed very similar to the methodological conflict in the social sciences. In my opinion, this immanent dichotomy has drained energies out of major advancements and has caused archaeology to lose trust and credibility when compared with other social sciences disciplines. It has also contributed to the general mistrust of archaeology by the wider public, with dire consequences for heritage management policies and practices, and educational institutions. But if the debate has created a deep dichotomy between a positivist, “scientific” approach and an individualistic, more interpretative and self-referential approach, it has to be said that while the proponents of the former seem to be aware of their quantitative (and dry, de-humanised) methodologies, the latter seem to be lost in a

paradoxical relativism, with very few attempts at shaping a real research methodology within their own remits.

As already noted, from this perspective Experimental Archaeology is not only the perfect litmus test for ascertaining potential misuses of the past in the public eye, but it is also theoretically located at the ideal locus for investigating the ontological and epistemological dichotomy described above. As discussed in Chapter 2, Experimental Archaeology research practice brings together measurable and unmeasurable aspects even more explicitly than other “archaeologies”. It therefore exposes potentials for methodological issues, which may have wider resonance across the whole discipline of Archaeology itself if analysed and compared with social sciences methods. Seen from an epistemological perspective, since the inherent “hybrid nature” of experimental archaeology is somewhat more relevant, the issue could also contribute to reflexions on ontological views and have a wider interdisciplinary resonance.

Deepening the understanding of the experimental archaeology “paradigm” through a social science methodological perspective seems to be the best way forward. Deeper understanding is also necessary because the experimental archaeology “actions” are performed in the present and involve many different actors from within contemporary society. In other words, it would be unethical to dismiss the aspect of theoretically framing experimental archaeology and determining its positionality within the methods of the social sciences, for this would highlight a lack of social responsibility and would confirm the state of experimental archaeology as a questionable research practice (Singapore Statement for Research Integrity 2010, point 11, 12, 14).

Experimental Archaeology as an epistemological hybrid:

Deals with measurable and unmeasurable variables;

Is set in a research context as well as in a social context

In conclusion, as part of archaeology in the broadest sense, experimental archaeology is also part of social science. And because of the presence of the “researcher”, the use of uniformitarianism⁸ as hidden assumption, the “claim” of humanism as witnessed in the Nordic school and the tension still existing between processual and post-processual (whatever declination is used to define these positions) approaches are still vital aspects of the discipline, it could be seen, from a methodological perspective, ready to confront itself with social science. In other words, are there any methods of enquiry used in the social sciences that reflect contemporary practices in experimental archaeology?

3.3 Comparative methodological study: experimental archaeology and qualitative social science methodologies.

As has been explained, in the social sciences there is a struggle between quantitative and qualitative methods which could offer an interesting potential for shedding light on experimental archaeology. Particularly interesting are the possible interactions with qualitative methods in the social sciences. They could provide a more solid structure for experimental archaeologists who acknowledge the value of unmeasurable aspects of their discipline, which need to be approached from a rigorous analysis perspective as such. More importantly, the mixed methods used in the social sciences could also be beneficial in experimental archaeology since the latter deals with both material objects (measurable) and living (either in the present or in the past) beings (unmeasurable). Lastly, the use of social science methodologies in general should always be included when experimental archaeology activities are either performed with an audience or see the active participation of human subjects (Comis 2021a). Below, a brief comparative account of three qualitative methods in the social sciences which could be of value to the field of experimental archaeology.

3.3.1 Interpretive Autoethnography

A basic question drives the interpretive project in the human disciplines: how do men and women give meaning to their lives and perform these meaning in their daily lives? There is a pressing demand to show how the practices of critical, interpretive, qualitative research can help change the world in positive ways.

Denzin, 2017, p. X-XI

In experimental archaeology, especially when activities are carried out in an actualistic or contextual setting, i.e., according to the most up-to-date knowledge of the materiality of the past (Outram 2008; Rasmussen 2007), the researcher is engaged in a practical activity in the present to investigate an element of the ancient past. Most experimental archaeologists deal with ancient technology problems. The struggle is to find a proper setting for the insights that come directly from the experiences of the researchers, rather than only simply analysing the material results and comparing them with the archaeological record. In other words, the focus is on the lived experience of the researcher, in the framework of a “humanistic experimental archaeology” (see Petersson & Narmo 2011). Experimental archaeologists perform a kind of active and intellectual research that, more evidently than with other fields of archaeology, brings to the fore the researchers themselves.

Interpretive autoethnography is a qualitative methodology used in the social sciences and has been developed mainly by Denzin in a book published in 2014 and in 2017. In this method, the researcher and the researched essentially coincide. Some passages from the book by Denzin, if taken with the due recognition of their being out of context, may be very useful to archaeologists, and especially to experimental archaeologists. The details of this methodology can be found in the literature, here only relevant perspectives in the application of the method will be highlighted.

Could interpretive autoethnography be useful in addressing the epistemological mixture which coincides also in experimental archaeology “humanist” practice? Could the interpretive autoethnography method provide a sound theoretical framework, perhaps

useful in the way experimental archaeology/archaeology practice addresses past societies, by providing the researcher with the necessary awareness of their present?

This method basically implies the use of the self-narrative tool used in psychological studies, utilized by the researchers themselves as part of the output of the social research. In other terms, some kind of “storytelling” is embedded in the research outcome, in form of poetry, prose and other text-based art. The method is interesting also from a purely archaeological perspective because it recalls the ethnographic direction that has played an important role in the history of archaeological thought (Trigger 2008, pp. 386-483), albeit translated into a creative endeavour.

The challenge that experimental archaeology triggers on to interpretative paradigms and propaganda is one of its main characteristics and has previously been highlighted in the context of the “universal fairs” in the US between the end of the nineteenth and the beginning of the twentieth century (Chapter 2, paragraph 2.3.5). Thus, considering that the experimental archaeologists usually carry out performative events in a loose or strict scientifically controlled setting but are also the agents of their experiments, sentences like the following ones could be useful to reflect upon:

These are performances that interrupt and critique hegemonic structures of meaning

Spry 2011, p. 35 as quoted in Denzin 2017, p. 32

We only study the representations of experience.

Denzin 2017, p. 35

Each person’s life can be read, forward and backward in time, as a curriculum, as a set of performative skills, knowledges, and pedagogical practices.

Denzin 2017 p. XI, note 4

These insights might prove useful in archaeological investigations, and perhaps even more in an experimental archaeology activity. Even so, autoethnography makes an extensive use of the “post structural turn”, in other words, challenges the ontology and the epistemology of reality. Starting with the assumption that lived experience is socially constructed (Denzin 2017, p. 41), the scholar assumes that lived experience does not have an ontological reality independent of language and interaction, and therefore he historicizes both experience and the identities it produces. The conundrum of this reasoning is evident in sentences like: “experience is at once already an interpretation and something that needs to be interpreted” (Scott 1991, p. 797, quoted in Denzin 2017, p. 41). This is an interesting short circuit⁹, implicit in which is a doubt of the existence not only of the object of inquiry, but also of the researcher herself/himself. In other words, sentences like: “there is no real person behind the text, except as he or she exists in another system of discourse” (Denzin 2017, p. 12), mark the exact point at which a general evaluation of primary ontological assumptions is needed¹⁰.

Despite the contradictions of the method, it is my opinion that the adoption of interpretive autoethnography could produce an intriguing and well-grounded creative direction for archaeology. These may, in some cases and if carefully directed, also flow into Art, while also being somewhat useful to contemporary society. This purpose is clear in the work of Denzin, and the performative aspect of the whole process is given a role in his methodology outline (Denzin 2017, p. 65-67). Some applied research in archaeology, aimed explicitly at a creative outcome, could provide a similar space for expanding this method, as with some examples that have already achieved interesting artistic contributions to archaeology, while still retaining the traditional, initial research (Savani & Thompson 2019). It is also probable that some high-level heritage communication performances already follow this performative route and could be even more meaningful if paired with interpretative autoethnography (Jackson & Kidd 2012).

Interpretive autoethnography is an interesting method to apply to the study of the past. If the object of enquiry was not relegated entirely on the powers of human imagination, as it happens to archaeologists who deal with objective fragments of past

realities, i.e., material culture which can be studied from a scientific perspective, paragraphs like the following one could provide a stimulating philosophical influence for archaeologists.

Talking about epiphanies, Denzin writes:

In writing an autoethnographic life story, I create the conditions for rediscovering the meanings of a past sequence of events (Ulmer 1989, p. 211). In so doing, I create new ways of performing and experiencing the past. To represent the past this way does not mean to “recognize it ‘the way it really was.’ It means to seize hold of a memory as it flashes up at a moment of danger” (Benjamin, 1968, p. 257), to see and rediscover the past not as a succession of events, but as a series of scenes, inventions, emotions, images, and stories (Ulmer, 1989, p. 112).

Denzin 2017, p. 28

It is obvious that this extreme position recalls the claims of the post-processualist movement within the theoretical debate in archaeology and, more importantly, an *aut-aut* stance regarding the use of mixed methodologies, falling back into dogmatic dualism.

The position that Denzin takes is indeed very aware and sound in respect of the interpretive conundrum of the contemporary social sciences:

Here is the dilemma. There are only interpretations, and all that people tell are self-stories. The sociologist’s task cannot be one of determining the difference between true and false stories. All stories, as argued earlier, are fictions. The sociologist’s task, then, involves studying how persons and their groups culturally produce warrantable self and personal-experience stories which accord with that group’s standards of truth. We study how persons learn how to tell stories which match a group’s understandings of what a story should look and sound like. It seems that little more can or needs to be said on this matter of truthfulness and knowing.

Denzin 2017, p. 59.

In conclusion, interpretive autoethnography provides interesting insights, but cannot deliver a sound and complete structural method for experimental archaeology. Certainly, though, it suggests useful means for directing the qualitative-creative output of research and might have meaning in Live Interpretation research methodology. It must be noted, though, that this endeavour would entail the experimental archaeologist to be disconnected from an active practice in social responsibility beyond the artistic endeavour, being focussed on the individual and subjective perspective only. But, possibly, the use of this methodology could increase the awareness of the separation from the original research question (the implementation of archaeological interpretations) from the actual performative output (a self-referential individual performance).

3.3.2 Experimental archaeology and Case Studies.

Case Study methodology faces the same difficulties in terms of grasping as it happens for Experimental Archaeology. It is unfortunately necessary to clarify that “Case Study Research” does not only entail the selection of a specific aspect or “case” on which the research is focussed as some archaeologists might believe (see Shipton & Clarkson 2015).

In Yin’s definition, Case Study Research can tackle the “whys and hows” of a social phenomenon. It is

an empirical method that

- *investigates a contemporary phenomenon (the “case”) in depth and within its real-world context, especially when*
- *the boundaries between phenomenon and context may not be clearly evident.*

Yin 2018, p. 15

Social scientists have written meta-case studies to understand Case Studies. This research method seems to be difficult to grasp also because it copes with the “understanding of complex social phenomena” (Yin 2014 p. 4 – see note 2.4). Case Study methodology is extensively used in research about business, marketing, tourism, health studies, politics etc. It uses different theoretical approaches (Boblin et al. 2013), each of which has been used in tackling the underlying issues inherent in the impossibility to generalize, the heuristic process and theory development (George & Bennett 2005).

The debate about Case Study methodology in the social sciences is very similar to the methodological confusion which surrounds experimental archaeology outlined in Chapter 2 (confront also: Yin 2018, pp. 18-22). And again, the same meta-conflict seems to produce similar outcomes.

In one work by Flyvbjerg (2006), who attempted a defence of Case Study methodology within the social sciences, five “misunderstandings” about case studies research were outlined. Most of these can be also read in critiques to certain aspects of experimental archaeology. The same claims have been made for it not to be reliable and valid (p. 4), the same critique on formal generalization as the only legitimate method of scientific inquiry (p. 10), but also how underestimated Popper’s falsification is (p. 11), the subjective bias (p. 17) etc. In other terms, Flyvbjerg collected critiques against Case Study methodology which were arising from both polarities, traditionally incompatible in the theoretical debate. He then addressed them to defend Case Study methodology in the social sciences. The reader can refer to his article to deepen the understanding of his defence.

Here, it is sufficient to point out that Flyvbjerg’s approach openly embraces the underdetermination of theory by fact and considers not only possible, but indicated, to integrate qualitative and quantitative methods:

Good social science is problem-driven and not methodology-driven.

Flyvbjerg 2006, p. 26

Case Studies methodology as conceived by Flyvbjerg, appears to have the potential to integrate traditional quantitative methodology in experimental archaeology with qualitative social science methodologies. Of course, there are aspects in which case study research and experimental archaeology are very different, one for all the fact that the subject of experimental research in archaeology should be the interpretation of the archaeological record and not, as it is in Case Studies, the study of human affairs (see Schurtz 1954). On the other hand, though, we must remember that the present actions of an experimental archaeologists, especially when they are carried out with the public or with students, are indeed an aspect of “human affairs”.

There are other interesting perspectives. Flyvbjerg’s defence turns at a specific point to address the question from the point of view of learning. This shift in perspective aimed to underline the importance of Case Study methodology in the learning process, primarily experienced by the researcher. There is a transition from research to learning, a movement from theoretical absolute knowledge to context dependent knowledge and, ultimately, to personal learning. Flyvbjerg uses the metaphor of a craftsman, starting as a beginner and learning how to become a virtuoso, to illustrate how a Case Study works on the researcher themselves (2006, p. 5 *passim*). The metaphor is perfectly applicable to a specific branch of experimental archaeology which deals with the reconstruction of ancient technologies¹¹. Experimental Archaeology (as a tool to enhance knowledge, and therefore with research as a primary aim) is in fact considered as an educational tool when performed out of its research remit (Reynolds 1999a; Baena Preysler et al. 2014, p. 85-86; Schenk 2015, pp. 93-94; AOAMs example: Lejre (DK) Holtorf 2014, p. 785; adult education: Oltorf 2010; effectiveness: Vasszi 2018). The importance of self-reflexion, as structured using case study methodology, could aid experimental archaeologists to avoid deviations from the original research question about the past, while still acknowledging their own learning.

The parallels between experimental archaeology and case study methodology in the social sciences could be framed as it follows: Its potential relies in the use of a physical medium to tackle a knowledge gap. It also allows analysis and theoretical inferences to be tested against a fully experienced reality through the experiment itself. The evaluation of knowledge is set on falsification procedures, and therefore on a holistic evaluation of every

possible outcome. Negative knowledge (falsification) or positive knowledge (validation) are considered equal advancements and shared. A self-reflective attitude will greatly aid the outcome of the research endeavour while allowing more personal observations to be shared with the scholarly community.

The only existing teacher, in this specific example, is experience. Case Study methodology, in an experimental archaeology perspective, is a source for memory of experience.

According to Yin, one of the most important specialists in the field of Case Study methodology in the social sciences, experimental archaeology could be compared (for hypothesis validation, but also for conflicting findings) to a multiple case study research design:

The replication logic is directly analogous to that used in multiple experiments (...). For example, upon uncovering a significant finding from a single experiment, an ensuing and pressing priority would be to replicate this finding by conducting a second, third, and even more experiments. Some of the replications might attempt to duplicate the exact conditions of the original experiment. Other replications might alter one or two experimental conditions considered challenges to the original finding, to see whether the finding can still be duplicated. With both kind of replications, the original finding would be strengthened.

Yin 2018, p. 55

While this short analysis was not aimed in being exhaustive and has just hinted at its possible contributions, Case Studies methodology in the social sciences seems to possess great potential for Experimental Archaeology methodology and could provide real integration of qualitative and quantitative methods in a dynamic and cyclical process (see paragraph 6.3).

3.3.3 The pioneer's bravery. Alexander Wendt and his study of Quantum social mind (2015).

As the quote by Wheeler at the beginning of this chapter shows, archaeology has always taken and used profusely from other disciplines to obtain ever finer tools for understanding the past. Sometimes, as was underlined above, the disciplines from which some tools were borrowed were mistaken for archaeology itself, to such an extent that archaeologists can write things like:

*At that time, there was a general focus on making archaeology into an objective science
in line with the natural sciences.*

Beck 2011, p. 168

It was, rather, that archaeology was discovering the potential of the hard sciences into its remits, to obtain ever more powerful tools, not to “convert” it into a purely natural science. This misunderstanding is still very evident in many works, as if the primary aim of archaeology was mislaid and forgotten, or the lack of focus on the archaeological research question was confused with methods and techniques used to target it. The means were confused with the aims, as it was already noted in the case of experimental archaeology and the resulting representations of “the past” (Comis 2006, p. 81).

The social sciences are not very different in this aspect from archaeology; they also borrow from science, and endeavour to develop more refined tools for understanding contemporary society. Nowadays, there is a rather superficial judgement on any “new” ideas that can challenge the existing paradigm, and quantum theory in the social science is not immune from this (Wendt 2015, pp. 5-7). Even so, since at least this exercise is taking into consideration the most recent outcomes of quantum physics as envisaged in the social science remits, why should we object with the attempt in utilizing the theoretical tools so far discovered for other disciplines? Quantum physics are revolutionizing the world of

science, and it would be somewhat short-sighted to ignore the discoveries made within this field in the social sciences¹².

Alexander Wendt studied the application of quantum physics' outputs in the application of social science research (2015). Wendt believed that the basic quantum concept that "the mind and social life are macroscopic quantum mechanical phenomena" was useful because

It calls into question a foundational assumption taken for granted by all sides – namely that social life is governed by the laws of classical physics.

Wendt 2015, p. 2

This point seems to be particularly interesting as the tools of classical physics, as outlined above, are presumed to be part of the only truly "scientific" tools for both social science and for archaeology. The shift in perspective, which the application of concepts of quantum physics has brought about, is especially meaningful in the contexts of the qualities of materials and in the agency of "measuring":

Whereas mathematical symbols in classical physics correspond to the properties of real material objects and forces, in quantum physics they represent only the probabilities of finding certain properties when they are measured.

Wendt 2015, p. 2-3.

This aspect of the application of quantum concepts may be of value if applied to experimental archaeology, although it would need to rely on a physical science setting with quantum considerations¹³.

Wendt (2015, pp. 5-6), along with other scholars before him, describes the dichotomy existing between physical and social science and underlines the essential problem of the

agency-structure debate. The difficulty in grasping the co-existence of materiality and ideas is very well summarised by Papineau (2011):

[..] the supposed “explanation gap” is due to our inability to stop thinking in dualistic terms; if we could get over dualism then the gap would disappear.

Wendt 2015, p. 17

Wendt argues that the quantum perspective, which is causing a revolution in physics, might provide the basis for an interesting framework to be developed and applied to social experiments. There is, however, insufficient space here to delve more deeply into the application of the quantum mind as envisaged by Wendt.

The quantum approach in the social sciences as exemplified here with the contribution by Wendt is very complex, but it seems to offer considerable promise for development in the context of a processualist experimental archaeology. Significantly, it also deals with the unpopular problem of the ontological assumptions underlying any research endeavour.

3.4 Social sciences: theoretically framing this study.

After describing the complex situation which exists in the overall theoretical framework of both archaeology and the social sciences and in the comparative exercise above, it was straightforward that the issue was constantly returning to a major crucial question, which appeared to be insufficiently developed and discussed primarily in a philosophical context. As such it was felt necessary to interrogate the philosophical assumptions that constitute the base from which this research is moving, following the rationale that Wendt outlined above.

To do so, the explored field was that of the philosophy of the social sciences and its outcomes on the methodological level, in a quest to find a solution to the apparent dichotomy. When reduced to the philosophical level, the clash between the methodologies and the permanence of dualism outlined above is related to the old question about the discrimination between natural sciences and human sciences, and therefore brings us to the point where we must consider ontological problems. What is real? What is the nature of reality? How, as we are both creators and part of it, can we study society? The best solution I could find with my limited resources was that brought forward by Roy Bhaskar in the 1970s (1978, 1979), when the dichotomy between natural science and social science was addressed from within a philosophical framework. His work gave birth what is today defined as Critical Realism. The ontological problem, which then leads to an epistemological problem, can be perfectly summarized by the question that opens Roy Bhaskar's "The possibility of naturalism. A philosophical critique of the contemporary human sciences":

To what extent can society be studied in the same way as nature?

Bhaskar 1979, p. 1

3.4.1 The foundations of Critical Realism in respect to Experimental Archaeology

Bhaskar's work and the development of his philosophical thought present a very interesting perspective in terms of both the social sciences and archaeology. There is no space here to delve into the depths of his work, and only relevant assets will be considered in this study¹⁴.

The work of Bhaskar deals with the philosophical question above using immanent critique analysis. Another way to describe this approach can be found in Bourdieu (1977), when he argues that critique must be carried out in social research even towards itself, in **a reflexive way**. This fundamental meta-turn shares some similarities with the post-

modern approach in archaeology. Here, Bhaskar's contribution to the critique of science, focussed on the experimental "way of knowing" (see below, paragraph 3.5.2), will be put in a comparative perspective with the theoretical stances of experimental archaeology.

The experimental process in science was addressed by Bhaskar in his early works (1979, 2008) by distinguishing between closed and open systems. Closed systems are the controlled settings of an experimental setup in a closed environment, such as a laboratory. The use of these closed system in an experiment allows the scientist to draw conclusions based on causal, controlled laws. But if the results of an experiment are considered to be valid in an open system, such as the real world outside the lab, the scientist is making a **fundamental philosophical assumption which identifies the domain of the real as consistent between the empirical (the experiment) and the actual (the reality)** (Bhaskar in Hansen 2005, p. 60-61, Bhaskar 1979, pp. 9-12).

Also, from an epistemological perspective, this implies the reliance to the so called deductive-nomological model of explanation which, as defined from Hume to Hempel (1965), "presupposes implicitly that the world is fixed, repetitive, unstructured and undifferentiated" and therefore can rely on general scientific laws (Bhaskar in Hawke 2017 p. 18; Bhaskar 2011, p. 1; see also Trigger 2008, pp. 400-401). Even if this may seem incontrovertible in terms of the material world, the same cannot be said from a social perspective, as this would mean "that the world here is the same as the world in South Africa and in Siberia, and in Burma and that the world today is the same as it was in 1750 and as it will be in 2050" (Bhaskar in Hawke 2017, p. 18). In other terms, the axiomaticity of time and space (or the geo-historical perspective as Bhaskar defines it) is forcing researchers to address un-experienced realities. This reasoning underpins every uniformitarian assumption made in archaeology, and it is crucial in the practice of experimental archaeology as well as in every other research endeavour which uses the experimental tool. We might say that both the "scientific" and the "humanistic" approaches in experimental archaeology maintain the same fundamental assumption, even if, in this perspective, very randomly experiment accounts in archaeology clearly state it. More importantly what had been defined as "actualistic experiments" or "contextual experiments" (see Outram 2008, Rasmussen 2007, Chapter 2), by far the most common in

the practice of experimental archaeology, are located *in between* the closed, controlled setting (the “lab”) and the open system (literally in the open-air), which, clearly includes the human, “unmeasurable” variable. In this “variable”, though, researchers are included themselves, and at best, if reflexivity is practiced, they might turn out as striving to be “proxies” to the object of research, especially for research questions which tackle societal issues and human behaviour, sensations, and motives (Hurcombe 2008, pp. 84-85). This underlies the ontological and epistemological mixed nature of experimental archaeology and its challenges, as we have discussed above (see the definition given in paragraph 2.1), by adding a fundamental philosophical perspective on the argument.

Experimental Archaeology as an epistemological hybrid:

“Contextual or actualistic Experiments” in EA: placed between Closed and Open Systems (the lab, the open air).

Having clarified the ontological perspective of science, and therefore the necessity of discernment between the actual and the empirical, ontology and epistemology, Bhaskar then moves on to consider how it is possible to apply the remits of natural science to the domain of society. As he very precisely describes when considering the philosophical ground underlying this question, when he addressed the problem:

The situation in philosophy and social science was that it was absolutely replete with dichotomies, with dualisms: the dualism between those who believed that social society could be studied naturalistically, mostly represented by the positivists, and those who believed that it couldn’t be studied naturistically, the hermeneuticists; the protagonists of structure versus the protagonists of agency; the methodological individualists versus the holists; those who stressed the importance of mind versus those who stressed body; reason versus causes, fact versus value, theory versus practice – it was just split!

Bhaskar in Hansen 2005, pp. 61-62

His view on the apparent dualism (born in the nineteenth century) also brings to the fore the new discoveries in quantum theory, by giving a simple and clear distinction between fields and the consequent relative use of methods (Bhaskar 1979, p. 17). In his own words:

Suppose, though, that philosophical and scientific accounts were to clash. What would this show? Merely that one had come up against the limits of a particular scientific form, just as the limits of the possibility of measurement may be given by quantum theory. But that measurement has limits does not mean that nothing can be said a priori about what the world must be like for measurement to be possible within those limits.

Bhaskar 1979, pp. 8-9

His critique of the two opposing ends of the polarity, responsible, in his words for the “social scientific malaise” (Bhaskar 1979, p. 25-26), exposes how social scientists’ own oppositional position is tainted by the same dead end: a total voluntarism for anti-positivists and blanket determinism for the positivists. This situation ultimately obliterates every possible benefit to society. The fact that social objects are irreducible to natural objects and do not possess the same qualities, surely indicates that they need to be studied differently. This does not, however, exclude scientifically valid procedures (Bhaskar 1979, p. 26). In other words, Bhaskar recalls the philosophical first block of pragmatism in the social sciences, as highlighted above, i.e., the underdetermination of theory by fact and signposts the shift from a paradigmatic to a pragmatic view (see above paragraph 3.2).

Bhaskar therefore felt that the **resolution of the problem of structure and agency** was pivotal in overcoming this immanent dichotomy. Considering society as a structure which is ultimately a legacy we receive from the past, Bhaskar pointed out that the individual agency manifests either in reproducing **or** in transforming praxis in our activity. By this *transformational model of social activity (TMSA)* Bhaskar defines the boundaries of the

“social domain” and its relational nature (Bhaskar 1979, pp 37-59; Bhaskar in Hansen 2005, p. 62).

*[...] both society and human praxis must possess a dual character. **Society is both the ever-present condition (material cause) and the continually reproduced outcome of human agency.** And praxis is both work, that is conscious production, and (normally unconscious) reproduction of the conditions of production, that is society. Thus people do not marry to reproduce the nuclear family or work to sustain the capitalist economy. Yet it is nevertheless the unintended consequence (and inexorable result) of, as it is also a necessary condition for, their activity.*

Bhaskar 1979, p. 44

Bhaskar’s work has successfully isolated ontological, epistemological, relational and what he defines as critical differences between natural and social sciences. In terms of the ontological perspectives, he underlies how **social structures are context-dependent, unlike natural structures**. Social structures are human activity-dependent. Natural laws follow their course independently from human social activities. Epistemologically, it is impossible to experimentally close systems in social structures, and therefore the fundamental criterion of a theory is the explanatory one. In other terms, it is rather difficult to use predictive tests in a social structure. The relational difference is set on the importance of beliefs in social structures. **Both the subject matter and the belief about the subject matter are part of social science**. When a false belief is exposed, it implies the exposure of irrationality of agency. In this sense, the function of social science is to demystify, and it also performs an emancipatory role in that it can empower human beings to change society. This is why Bhaskar introduced the **critical difference** between natural and social sciences (Bhaskar in Hansen 2005, p. 63).

The critical difference:

Emancipatory role of the Social Sciences.

This thesis argues that experimental archaeology needs to be reassessed from this ultimately ethical perspective in its contemporary agency in relation to the imagined past.

Bhaskar criticizes the post-structural turn that limits the social sciences only to language and concepts with a very simple position:

Society is conceptual; social life is conceptual, concept-dependent, but not exhausted, not saturated by concepts.

Bhaskar in Hansen 2005, p. 64

His use of the metaphor of the magnet can clarify the critique to the post-structural turn:

Consider for a moment a magnet F and the effect it has on iron filings placed within its field. Consider next the thought T of that magnet and its effect. That thought is clearly the product of science, of culture, of history. Unlike the magnet it has no (discounting psychokinesis) appreciable effect on iron. Now every science must construct its own object (T) in thought. But it does not follow the fact that its thought of its real object (F) must be constructed in and by (an exist only in) thought that the object of its investigation is not independently real.

Bhaskar 1979, p. 33

Another important asset that Bhaskar develops in the 1990s is that of the crucial role of **absence** in the conceptual framework of the social and natural sciences. This concept was fundamental in the first complete comprehensive work related to Critical Realism by Sandra Wallace (2011, pp. 66-69), which deals with both the philosophy of Roy Bhaskar and archaeological theory. This thesis supports an even deeper application of the ontology of absence within the wider field of archaeology as both a science and a social science. But also, as we have seen previously in the instance of experimental archaeology, this research emphasises the importance of the role of absence, in the form primarily of gaps of knowledge, and secondarily in negative results of the experimental work (i.e., falsification¹⁵).

Going deeper into the ontological and epistemological aspects, Bhaskar develops a stratified vision of reality for tackling the distinction between the real and the actual domains, which is also very intriguing in terms of archaeology:

For this can now be seen as grounded in the multi-tiered stratification of reality, and the consequent logic - of discovery – that stratification imposes on science.

Bhaskar 1979, p. 16

This concept of “tiers of reality” lead Bhaskar to theorize emergence¹⁶ as a major concept in research (Bhaskar 1979, p. 26; Bhaskar 2017, pp. 23-24).

The concept of stratification is developed by Bhaskar to also include the human being when seen from a social perspective. Addressing the contemporary global crisis, the philosopher produced an interesting definition of the four planes of social being. These levels, or dimensions, are defined as:

1. Level of our material transactions with nature;
2. Level of social interactions with others;
3. Level of social structure;

4. Level of the stratification of the personality;

All of these aspects are relational and dynamic, and for each Bhaskar is prepared to use an almost pragmatic approach, based on their different nature. The acknowledgement of the “differences in their subject matter and in the relationships in which their sciences stand to them” (Bhaskar 1979, p. 3) seems to indicate a kind of underdetermination of “methodology” by “the nature of the object”. This aligns his philosophy with that of social science scholars cited in the first paragraph of this chapter and justifies the later inclusion of critical social sciences within the pragmatic approach¹⁷.

Another important aspect which Bhaskar brings forward is that of research as a dynamic process, which moves between the levels of manifest phenomena to deeper structures which generate them (Bhaskar 1979, p. 17). In other words, it may be possible for the researchers to trace back the causal reality behind the empirical and the actual realities.

Another aspect of Bhaskar’s philosophy, which, it must be acknowledged, is far more complex than what is here illustrated, and has developed further with other philosophers and social scientists, that is relevant to this thesis is the epistemological approach. This was developed to deal with a complex research object such as the social world, while retaining a strong reflexivity and process of critical analysis.

Bhaskar suggests that the main logic of discovery which can be used in critical social science is retrodution (Bhaskar 2011, pp. 3-6). Retrodution is not induction nor deduction, in Bhaskar’s expressions in one of his last lectures:

In the retroductive moment, a scientist imagines a mechanism or structure, which, if it were true, would explain the event or regularity in question. It is a use of the imagination to posit explanatory mechanisms and structures.

Bhaskar in Hawke 2017, p. 28

Inherent within this logic of discovery, which Bhaskar integrates in the DREIC model (see below), is the capacity to produce explanations which are independent from the phenomenon under scrutiny (Bhaskar 2011, pp. 3-9).

In conclusion, Critical Realism is an underlabourer¹⁸ philosophy based on what Bhaskar has defined as the “holy trinity” of critical realism:

Ontological Realism

Epistemological Relativism, and

Judgemental Rationality.

Bhaskar 2011, p.1

These three aspects are integral to the critical realism stance and cannot exist without the others. In other terms, ontological realism acknowledges that reality cannot be exhausted either by measurements or subjective language expressions; epistemological relativism acknowledges the fact that “knowledge is transient” and fallible (Nunez 2014, p. 55, as quoted by Hawkes 2017, p. 20), and finally judgemental rationality is needed in order to evaluate the complex system and make rational choices in the research endeavour.

3.4.2 Critical Social Science as a theoretical framework for this study

Knowledge grows with the use of an ongoing process of eroding ignorance and enlarging insights through action.

Lawrence Neuman 2011, p. 113

The critical approach outlined within Bhaskar’s philosophical work, together with insights by other relevant scholars (see Lawrence Neuman 2011, p. 108), gave birth to what

is today called Critical Social Science (CSS). This approach proved to be the model best suited to performing the “outer” research practice required for this study.

CSS is convincing within the boundaries of this study, firstly because it criticizes equally the two opposing poles of the theoretical debate. Adopting this perspective overcomes the constitutional dualism and opens new possibilities of integration, free from the danger of dismantling any opposing position yet acknowledging the distinctive nature of the object of enquiry. Furthermore, it allows the use of the most apt methodology for gaining a fuller understanding of the social phenomenon under scrutiny in a dynamic and relational model of investigation.

On one side, the quantitative approach is criticized for being unable to relate to real people, and on the other the interpretive position is criticized for being too subjective and failing to “take a strong value position or help people to see false illusion around them” (Lawrence Newman 2011, p. 108). Even if CSS acknowledges the existence of “an empirical reality independent of our perceptions” (Lawrence Neuman 2011, p. 109), as one pole of the opposing ends of the theoretical framework believes, CSS criticizes it for being insufficient as a means of relating with meaning and real people. And, even while CSS recognises the importance of the other end of the theoretical debate (the “Interpretive”), it is equally critical of this position for ignoring long-term consequences and giving too much importance to ideas rather than people’s actual conditions (ibidem). Thus, it highlights failures in fulfilling the ethical standards and the ultimate purpose of social research.

The power of CCS is in its capacity to provide clarification on false beliefs in society in order to produce social improvement. In one of the definitions:

Critical social science is a critical process of inquiry that goes beyond surface illusions to uncover the real structures in the material world in order to help people change conditions and build a better world for themselves.

Lawrence Neuman 2011, p. 108

Critical social scientists perform their research to “explain a social order in such a way that it becomes itself the catalyst which leads to the transformation of this social order” (Fay 1987, quoted in Lawrence Neuman 2011, p. 109). The main hallmark of this research theoretical framework is, therefore, that it explicitly attempts to fulfil a social purpose, by empowering people to build a better world. This shift in perspective enlarges the purposes of research in general; they are not limited anymore to understand the world but seek to change it. Since the very beginning of critical social research, CSS has been used proficiently as the basis of advocacy tackling many troubling areas of contemporary society, such as racial discrimination, gender issues, inequality (see for example Harvey 1990). The twofold aspects of this approach include both uncovering illusions and investigating human potential.

By recognising that reality is stratified both at an ontological and epistemological level, the researcher can expose and distinguish the nature of the phenomena under scrutiny and their belonging to different levels of reality. By determining the actual hidden reasons behind superficial phenomena, CSS then empowers the actors and agents to change their **praxis**. This approach is far from being simple and straightforward, as different structures can exist at different levels of the stratified reality and can be interacting with each other in many complex ways. More importantly, the causal structures which are located at the deeper level of reality, are subject to change over time. Causal structures, moreover, might sometimes act paradoxically and engage the researcher in a dialectical process of enquiry. If the “positivists” underline the effects of external reality, whereas the “interpretivists” emphasize the subjective inner construction of reality, CSS argues that there is a deeper reality, given to us like a legacy from the past. This has real repercussions on our life, and meanwhile, we construct and shape our own experience (Lawrence Neuman 2011, p. 110). There is, in other words, a dynamic and relational aspect in our social life, which acknowledges being shaped by society and creatively shaping it. If we were to describe this approach in term of orientation, we could define it as reflexive-dialectic orientation (Lawrence Neuman 2011, p. 114).

Following Bhaskar, CSS is “critical” in that it allows human empowerment as it includes practices, and not just ideas.

In this framework the preferred theory is an explanatory critique which uses retroduction or abduction approaches to knowledge:

Instead of beginning with many observations or with a theoretical premise, abduction “tries on” a potential rule and asks what might follow from this rule. Both ideas and observations are placed into alternative frames and then examined, and the “what-if” question is asked. A researcher using abduction applies and evaluates the efficacy of multiple frameworks sequentially and creatively recontextualizes or redescribes both data and ideas in the process.

Lawrence Neuman 2011, p. 112.

There is a convergence of this procedure with qualitative methods research in the social sciences: since an abductive argument brings together both inductive and deductive reasoning processes, it might be the case that the final “explanation” may only be accepted as “the best explanation”, that which covers as many aspects of the phenomena as possible (Gibbs 2018, p. 7).

Within the remits of theory as explanation, the specific way critical social scientists use theory is particularly well described by the map metaphor. By using **theory as a map**, critical social scientists can search for facts and detect, underline, and explain their interrelationships. If we push a little further, and consider **methods as “lenses”**, Critical Social Science does not rely on a monocular view, such as either quantitative OR qualitative methods. Instead, it uses a binocular, recognising the nature of every object under scrutiny. This is also why the theoretical map can be enhanced by engaging the researcher’s awareness of the multi-layered reality. The outcomes of such procedures will not be definitive, but will clarify, eliminate illusions, and advance knowledge in a dynamic and collaborative way.

Theory is married to **critical praxis**: the researcher and the people being studied are brought together, thinning the distinction between science and daily life. In other words, the explanations which are developed by the researcher are evaluated against their success

in helping people to understand the world and “take action that changes it” (Lawrence Neuman 2011, p. 113). Solid moral grounds are therefore absolutely essential for researchers, as well as a deep understanding of history and of the social context in which the research is set. In this sense, social research is a moral-political activity based on values. The **ethical** standpoint of critical social science is, indeed, very strong, especially regarding the uses of the research outcomes. CSS affirms that:

Social science knowledge can be used to control people, it can be hidden in ivory towers for intellectuals to play games with, or it can be given to people to help them take charge of and improve their lives. What a researcher studies, how he or she studies it, and what happens to the results involve values and morality because knowledge has tangible effects on people’s lives. The researcher who studies trivial behaviour, who fails to probe beneath the surface, or who buries the results in a university library is making a moral choice.

Lawrence Neuman 2011, p. 115.

Critical Social Science and the foundations of Critical Realism seem to provide a very convincing theoretical framework for performing the primary level of this study: the action in the field and the methodology. However, it must be stated that this is also important in archaeology overall, and in experimental archaeology as two distinct fields of the social sciences themselves. As Wallace pointed out for the use of Critical Realism in Archaeology:

The realist depth ontology that is advocated by critical realism is not suggested as an importation to be applied directly to archaeology, or to theories of the material, or to form an epistemological framework, but is instead characterised as a way of thinking about reality that is logically essential for a discipline such as archaeology, which deals with relations between the material and social in the context of large time depths and spatial variations.

Wallace 2011, p. 6

It is therefore necessary to clarify how this theoretical framework and research programme can be of value in achieving the aims and objectives of this research, and how the theoretical framework needs to be shaped in order to fulfil the need of coherence. Wallace has dealt with Critical Realism and archaeology, here Critical Realism, and Critical Social Science, will be matched to experimental archaeology. In the following paragraph I will project this theoretical framework onto this study, highlighting the most resonant aspects and clarifying the major differences in order to set the theoretical structure on which the object of enquiry of this work is based.

3.5 Exploring the uses of experimental archaeology in European AOAMs: theoretical framework

[...] we cannot take apart reality. What we can do is keep the clarifications in mind and perhaps move to consider something else, if we intend to speak about quality.

Comis 2010, p. 10

As we have seen in the above paragraph, Critical Social Science (CSS) “emphasizes combating surface-level distortions, multiple levels of reality, and value-based activism for human empowerment” (Lawrence Neuman 2011, p. 110). So, how and why is this framework convincing in addressing the aims and objectives of this research?

Primarily, Critical Social Science offers great potential as an effective tool for investigating the contemporary aspect of AOAMs. This theoretical framework was utilized successfully in the field of problematic heritage management issues in Australia where it was also compared to the advancement of archaeological theory (Smith 2004; Wallace

2011, pp. 162-165). It proved to be useful especially because it involves both the careful investigation of the contemporary relational situation in AOAMs (including management and content) as well as a practical outcome in the critical praxis.

The more challenging applications of this philosophical framework, however, have to be clarified in terms of their application in the field of experimental archaeology itself.

By illustrating the overlapping meanings attributed to the **experimental archaeology praxis**, we might be describing an overlapping of realities. All these realities have a common denominator in **the interpretation of the past in the present**. This means that instead of having just one, clear, determined, and cohesive message, they extend their level of engagement across different areas of knowledge, and therefore of research strategies within the hard sciences, the social sciences, and also, since they are performed in the present, often with public participation, they represent a **complex social phenomenon**¹⁹ *in the making*.

EXPERIMENTAL ARCHAEOLOGY
IS A COMPLEX SOCIAL PHENOMENON

In the practical activity of experimental archaeology, the material level deals with the hard sciences and ancient technology, and from a research perspective on these fields, it is obvious that it deals with the researcher's positionality. But, according to the common understanding, experimental archaeology includes also: performative events, educational activities, social gatherings, etc (see Chapter 2, paragraph 2.2.2). At this level what is conceived as experimental archaeology by contemporary society can only *metaphorically* be used to understand the phenomenon through the lens of the interpretation of the past only. As it has already been stated, the way in which society as a whole interprets the past has proved to be crucial in human history, and the conscious mystification of the past has been used to propagate power-led ideological biases. At a higher level, the one that deals with Knowledge itself, experimental archaeology, aimed solely at enhancing our

knowledge of the past, finds itself in a crucial point that brings together the conflicts based on dualism, as evidenced above, inherent to both ontology and epistemology.

According to CSS, “there is an empirical reality independent of our perceptions and we are constructing what we take to be reality from our subjective experiences, cultural beliefs and social interactions. A critical realist ontology views reality as being composed of multiple layers: the empirical, the real, and the actual” (Lawrence Neuman 2011, p. 109).

Instead of relying on the metaphor of the chemical reaction to explain the epistemological consequences of the stratification of reality as some critical social scientists did (Collier 1998, p. 260), I believe stratigraphic excavation can provide a very useful and accurate metaphor, easier to understand for archaeologists. Every archaeologist knows that reality does not necessarily have pre-formed empirical characteristics: those are going to emerge²⁰ by the careful archaeological praxis of excavating. This method, in my opinion, gives the archaeologist a very effective tool, when the action is carried out with solid moral grounds and great sense of responsibility, as the **archaeological excavation is a destructive and irreversible action that transforms material reality** into information, **into data** (Hurcombe 2007, p. 12, p. 14). Only a small part of the material evidence obtained from archaeological excavation is preserved and analysed. The nature of the “excavated” archaeological information is not easily interpreted. The distance across time, which has on one hand obliterated the material findings’ complete characteristics and, on the other, has enlarged the separation between the ancient minds and ours, defines the object of stratigraphic excavation as incomplete, fragmented and transformed by both natural and human actions (Hurcombe 2007, p. 6). Moreover, as Wallace (2011) has pointed out, archaeologists are trying to assess something about the human agency created the archaeological record *in primis*. But the society which created the material record is simply not there anymore. This is also why, in a philosophical perspective, Bhaskar’s profound **consideration of ontological absence** is so important in archaeology (Wallace 2011, pp. 126-137). It follows that, more so than in the natural sciences, **the social interpretation of the archaeological record requires a theoretical and ethical framework**. It is through the attempt to fill the absence of the causal agency which created the archaeological record that experimental archaeology was born. That agency, though, is not

only human, and therefore not only social. It is also natural, and therefore relies, within those boundaries, on the hard sciences. The conundrum in theoretical archaeology is only due to a scarce distinction of the nature of their objects of inquiry and their dynamic relationship. Seen from an epistemological and analytical perspective, the archaeological data possess different characteristics from the archaeological research output derived from it. Material data and derived data are ontologically different from the best explanation and interpretation of the past societies whose data was left behind, and thus need to be addressed carefully. The danger lies not in the fact of using either one or the other theoretical approach, but in the lack of awareness of the ontological absence, on the ontological distance and of the substantial difference between the output of research and the real object of research, which ultimately belong to different “layers” of reality. On the processual side, there is seldom indication of which bridge has been used to move from material studies to societal or behavioural interpretations. While, on the other hand, this is a more evident failing in experimental archaeology in the “humanist approach”: researchers are not even communicating the uniformitarian assumption on which their work is based. Any experimental archaeology work which includes the human actions, should assert explicitly that we believe we are similar to humans who lived in the past and *therefore* we can use ourselves like an experimental tool (see Wallace 2011 critique: pp. 10-12; pp. 99-106; p. 158). But, apart from this, are we really similar to the ancient humans? As far as we can see our physical structure is the same, and the brain size is the same, with no more major changes for 300.000 years (Hardy 2021, p. 10). But what about the mind, and the perspective that humans had in the past? By focussing on emotional, sensorial, or intellectual engagement only, experimental archaeologists do not realise that what they are communicating is their present, and not “the past” or the causal reality which they are attempting to be investigating. At worst, as we have seen above, they are perpetrating an unethical reproduction of biased ideologies, inappropriate in our current society, and sometimes dysfunctional, especially if acted out unconsciously in the name of “That Past”.

In other terms, the interpretation of this degraded material record, and the blurry lens we possess through which to interpret the societies which are reflected in those, demands the archaeological excavation method to be irreproachable *in primis*²¹ (Hurcombe 2007, p.

15). And, beyond the excavation, the same material record demands a critical analysis of the archaeologists' own ethics. This self-reflective and critical attitude must be applied to the analysis and the interpretation of the information gathered, in order to understand the past with full awareness of the intrinsic limits and our own biases. Only in this way we can limit the detrimental effects on society a careless interpretation of the past has been proven to have; in short, by developing a **social responsibility in archaeology**. The interpretative tool relies firmly upon hard science approaches to the physical excavation or other survey techniques and upon scientific artefact analysis. Dealing with the interpretation of the society that produced that archaeological record, a so to speak in Critical Social Science terms, its causal reality, the terms are different and more complex, and cannot be exhausted through science alone. It is at this point that the most likely explanation of the archaeological record itself, and its social interpretation needs to refer to the social sciences.

Time is the key variable in understanding archaeology: the archaeologist lives the present while interpreting the past (Ion & Barrett 2016, p. 132)²².

In addition, experimental archaeologists sometimes might seem as if they are LIVE interpreting the past. But the experimental archaeologist must be aware of the distance, both in time and in meaning from the reality of the past. Nor should they forget that research adds to knowledge, or it is not research. The aim of interpreting the past in a pure intellectual way, with traditional means of research, collapses in experimental archaeology, and seduces the intellects into live-interpreting an imagined past. Wheeler's definition of archaeology as a disciplined use of imagination seems still valid: "we must be content to do what we can with the material vouchsafed to us, in full consciousness of its incompleteness" (Wheeler 1954, p. 243).

The social scientist can find interest in the outputs of this research process in contemporary society. Experimental archaeology and related activities provide an amazing array of different means of self-representation for diverse groups across society. "The past", though, is not only experienced by the experiencer, but the acts of experimental archaeology are also charged of a **projected past** deriving from cultural beliefs, which is

directly experienced as a social interaction. Experimental archaeology represents thus a complex culturally charged social phenomenon.

Thus, this research, in recognising the stratification of reality, as all archaeologists do in their material, practical work in the present, and then in trying to interpret the fragments of past realities in order to understand them better, has added another layer to the usual three (real – the past, actual – the archaeological data retrieval and analysis, empirical – experimental archaeology), one that is transversal: the dimension of time.

It seems that experimental archaeology praxis tends to collapse the time dimension of society. It is, in other words, an axial perspective through the levels of reality, which attempts to make the constant variable “Time” = 0, null. According to the TMSA model explained above, this phenomenon can be addressed in order to see how society represents itself and how it perpetuates, or changes, future outcomes, through contemporary practice and social action. Critical Social Science adds to this the interest in changing society based on ethical values and on solid moral grounds.

Now, the experimental archaeology phenomenon is also transversal in that it deals with many representatives of different areas in the social distribution, bringing together the chemist with the archaeologist, the historian, with the volunteer, with the re-enactor, with families, groups, individuals. All these groups and individuals are, for one reason or another, brought together through by the pursuit of specific forms of agency; some for research, some for entertainment, some for need of belonging, some for fugue, some for performances, some because of the hell of their social or individual psychopathology. If we apply Bhaskar’s TMSA model of humans in society (Bhaskar 1979, pp. 37-59; Bhaskar in Hansen 2005, p. 62), it is interesting to see how all the four levels are stimulated during an experimental archaeology practice. It is in the first level, that of our material transactions with nature, that experimental archaeology has its fundamental stance, and ultimately, its source/object of inquiry, albeit one referred to the distant past. The second level, that of social interactions with others, is also involved. This happens both as an object of inquiry and a praxis. The third level, that of social structure, is more delicate to address as object of enquiry, but is surely present as a praxis. The fourth level, that of the stratification of the personality, is always involved in every human action. To assess it is also the object of

inquiry for the experimental archaeology activity which aims to understand the past is somewhat inappropriate. But, on the other hand, it is undeniable that every participant in an experimental archaeology activity will be fully involved at all levels of her/his personality. And, thanks to the individualistic “storytelling” being produced by some experimental archaeology works, it could provide material for psychology²³, and it certainly contributes to human creativity and art.

Thus, with consideration given to the **positionality of the researcher**, all of the relevant fields of knowledge were analysed in this axial perspective, with a view to contributing to the healing of a “black hole” in which not only the three levels of reality are intrinsically mixed, but also time is collapsing, precipitating into many confused outcomes in philosophical, scientific, methodological and social aspects. If we use the metaphor of the fabric, made of networks, or the more complex and contemporary metaphor of software programming, the issue here explored exposes a laceration in the structure of knowledge and a hole that can be mended only by bringing together the cut threads of archaeology and social sciences at the higher level of research methodology, and at an internal level within the field of archaeology itself. But, on the third level, such a ‘restitching’ might also mend the knowledge gap that exists about the social consequences of the projected past in contemporary society and how to possibly transform them.

3.5.1 Time Crystals: the axial perspective in archaeology and experimental archaeology.

The axial perspective chosen for determining a solid framework on which to base this study is, as explained previously, that of time. Wallace observed that this perspective was yet to be addressed in critical realism, and that, furthermore, the possible outcomes could be important in archaeology (2011, p. 74).

Here time will be considered as a constant, linear progression which proceeds despite human actions (Wallace 2011, p. 141). In other terms, if time is considered as a linear progression independent from human action, the passage of time determines a causal relationship between two points on the line of time, and therefore it allows us to

discriminate between what is past from what is present, and what is yet to come. This, of course, is an assumption²⁴.

In this light, the archaeological praxis could be described in four main subsequent and causal relational steps²⁵:

1. The formation of the archaeological record (causal reality). This point has been simplified as a unique point, but archaeologists are very aware there are internal subsequent and causal factors: production of the archaeological record (life in the past); past humans' agency; post depositional natural or artificial modifications of the archaeological record (Hurcombe 2007, p. 6).
2. Data collection (actual reality): the archaeological stratigraphical excavation. Again, this is over-simplification of this step. Apart from the fact that there are other ways in which the archaeological record is retrieved (for example stray finds) the archaeological excavation includes interpretation *in situ*, documentation, archiving, drawing, sampling, a great deal of physical work and other things such as social power dynamics.
3. Data analysis: the analysis of the archaeological record retrieved. This is not only the material record. It is also documented records, in other words, data.
4. Interpretation: the interpretation of the archaeological record in the light of all the information gathered from point 2 and 3 and assumptions on point 1, as well as comparative studies already performed in similar contexts.

On an imaginary line between the past and the present, we could say that point 1 is the past, whereas the following 3 points happen in the "present". It is with the act of stratigraphic excavation that the past actually becomes the present. Since excavation deals with deposited soil and artefacts, it is based on geology, physics, and related laws. Nonetheless, since the archaeological record is created by human action in the past, it possesses a level of complexity for which those laws are not sufficient. To add to the burden of complexity, the very act of excavating is destructive. In the material world there is no possibility to re-assemble a completely excavated site. Therefore, a method of recording was designed to transform material data in information: the Harris' matrix (Harris 1979). So, the archaeological stratigraphic excavation is where matter becomes data, too. All the

material record recovered is stored or sampled for further analysis. All the subsequent layers are recorded and drawn while the excavation proceeds. With modern technology it will soon be possible to visualize a virtual reconstruction of an excavation.

The law of gravity and natural deposition of soils determines that, for excavations, the most recent layers are excavated first, and the stratigraphy moves from the present to the past, in reversal of the order of the original formation process. This is also why the stratigraphic method and the matrix sequence coding are absolutely necessary: they allow us to “reverse” the stratigraphy to re-instate the linearity of time in the original archaeological record and thus to gain a chronological understanding. Therefore, it is also true that the archaeological stratigraphic excavation is where the present becomes the past in a physical way, deepening in time as the excavation proceeds²⁶.

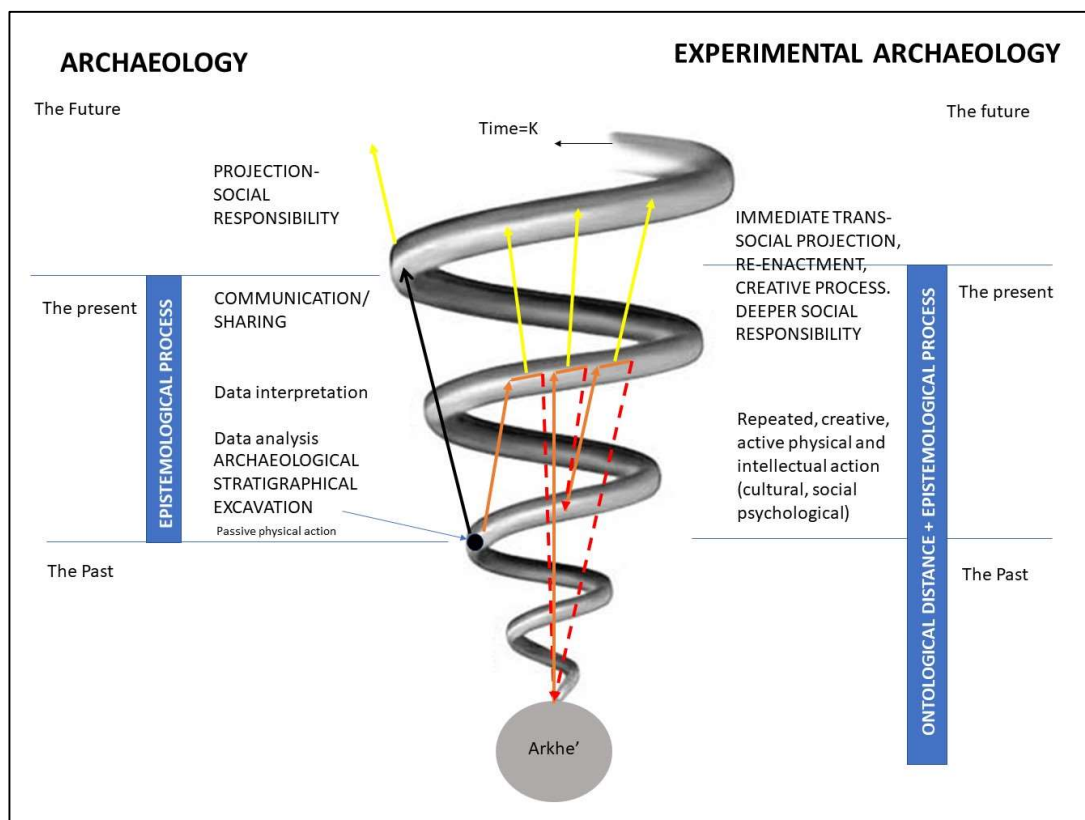


Figure 3.2 Time as axial perspective in archaeology and experimental archaeology.

If we could trace a scheme (fig. 3. 2) of the process outlined above, we could use an upward spiral to represent the linear flowing of time, from the past to the future. The starting point could be called the *arkhe*²⁷, the causal action which happened in the present-past and created the material aspect of life. With time, that material aspect is transformed into the archaeological record. The act of excavation, which may be represented with a point further up on the time spiral, draws a line between the past and the present. Despite the fact that a considerable amount of interpretation is performed during the excavation itself, the stratigraphic method allows this phase to be called a passive physical action. In principle, the archaeologist cannot “change” the archaeological record, or the past. This is why archaeologists cannot answer the questions of the passers-by who ask, “What are you looking for?”, because the archaeologist does not look for anything, the archaeologist only finds what is constantly emerging from the archaeological excavation. A good deal of the archaeologist’s effort is directed towards accuracy and precision in documenting, ever more so if the interpretation of the stratigraphy is not very clear. In other words, as indicated above, the archaeologist makes use of the ontological emergence of data in a literal sense in the domain of the actual reality. After this, at the end of the excavation, the archaeological record is studied and analysed alongside the stratigraphic evidence. The latter is reversed to restore the original depositional (causal, from a time perspective) order of layers. The interpretation of all these interrelated data (material and intangible) is like a discourse which speaks to the archaeologist, it is like a *logos*. And finally, drawing a line onwards from the recovery through excavation and on to the publication or sharing with the scientific community, the outcomes of the interpretation and the data are shared with the general public. As we saw previously, however, the interpretation of the archaeological record requires assumptions to be made about the formation of the archaeological record itself and its interpretation, most of which often relies on preconceived ideas and ideologies²⁸. The archaeologist must, therefore, be aware of the consequences of the *logos* that is going to be shared in what we can call the future; what is yet to come. That last step, which has to be predictive, is labelled “social responsibility”.

Now, what happens when we deal with experimental archaeology and add also agency in the empirical reality (fig. 3. 2)? Instead of drawing a straight line from the excavation to

the publication, the action of the experimental archaeologist extends in time while returning constantly to the archaeological record or its analysis, all the while trying to reach its *arkhe'*. It is not a *logos*, a continuous discourse, it is a *dialogos*. And the repeated action which often happens by reproducing all over again the same experiment in order to assess the nature of the *arkhe'* by testing its interpretation, makes the experimental archaeological action comparable to a virtual one: it is not a single point on the line of time, it is a progression of time itself which is repeated. Instead of being a passive physical action as the archaeological excavation, the experimental archaeological action is an active empirical engagement and can target all the levels of reality, starting with the *arkhe'* (Real), passing through the excavation procedure and the analysis (actual), the experimental endeavour (empirical), and ultimately the interpretation of the archaeological record. The theme of attempting in categorizing experiments within archaeology has evidenced this “multipurpose” application of the experimental tool from a processual perspective, as can be exemplified by the scheme below (fig. 3. 3), drawing on the work of Mannoni and Giannichedda (1996, p. 152, fig. 27). In this example, referred to a specific kind of object of investigation, i.e., an artefact, experimental archaeology targets its use, manufacture and deposition.

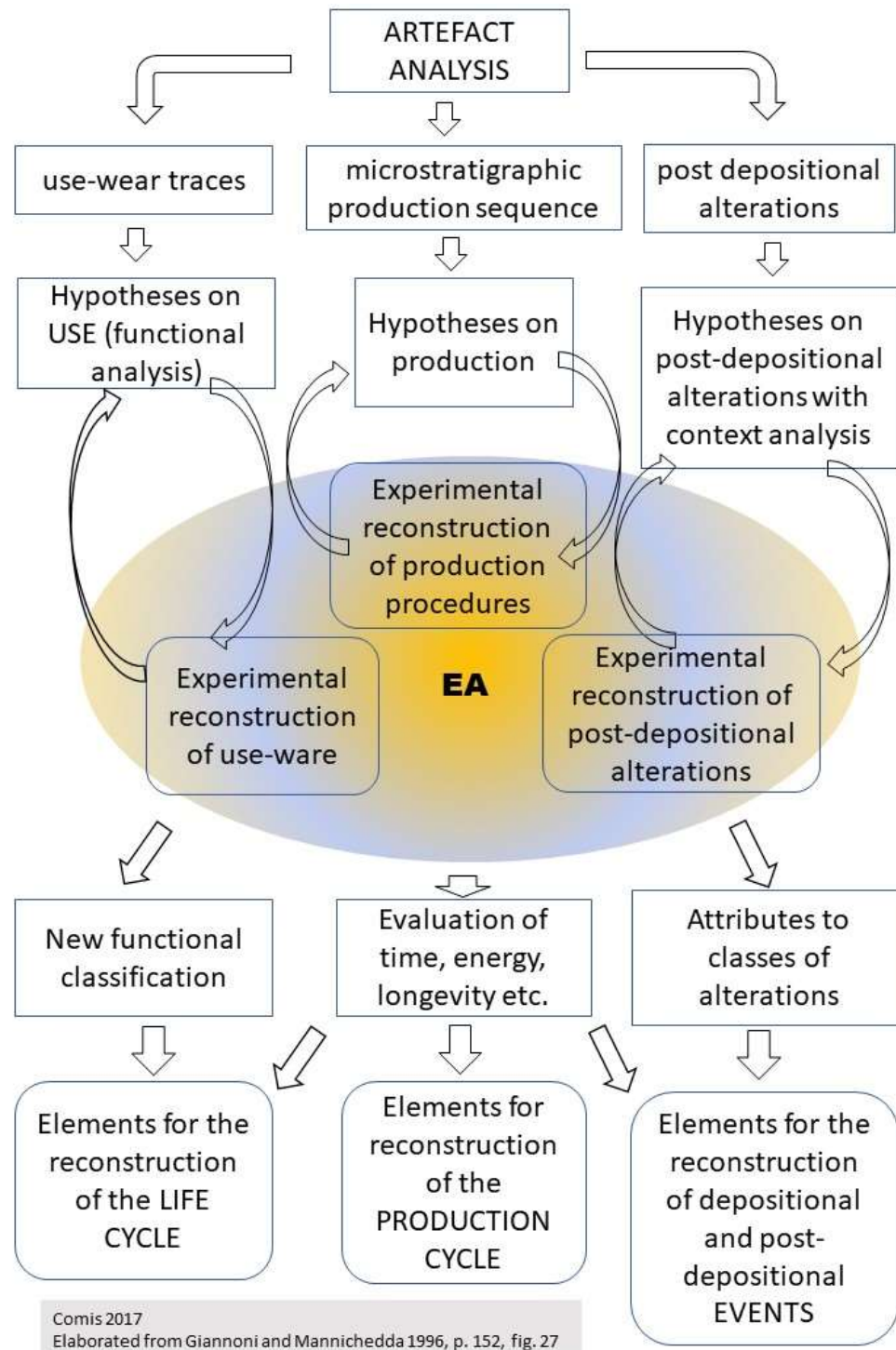


Figure 3.3 Processual schematic representation of the role of experimental archaeology in archaeological artefact analysis.

Experimental archaeology praxis is more evidently a creative action than traditional archaeology, and thus is more charged with the contemporaneity of the researcher. There is a considerable addition of “real life” power inherent in this projection, the re-enactment and the creation of a projected past through agency. In fact, it attempts to “give life” to the Great Absent of archaeology: human agency (Hurcombe 2008, p. 84-85). Therefore, the experimental archaeologist needs greater self-awareness and a deeper sense of social responsibility because the impact of their actions, generally speaking, has more immediate and profound effects on their audience. They are going to be impacting the social fabric, in any case, if their action is shared with the public, sometimes even before the actual publication of the traditional archaeology research trajectory.

If traditional archaeology is dealing with a delicate, complex, and progressive action which lets the past ontologically emerge into the present and the present penetrate the past epistemologically, experimental archaeology deals with a more forceful action which, if looked at from the perspective of linear time, seems to be attempting to claw the past back in the present by attempting to collapse distant timelines through reiteration in increasingly precise replication.

As has already been observed, the biggest difficulty in the work of the archaeologist and the experimental archaeologist is the distance in time which separates them from the causal past. Therefore, both disciplines need to rely on previous knowledge and on assumptions to correctly interpret the archaeological record. Sandra Wallace has theorised this distance by defining it as the absence of the society which created the archaeological record. This absence, in archaeology, could be described as an **ontological distance²⁹ in time**, which constitutes the major problem affecting both archaeologists and experimental archaeologists alike. Perhaps, it could find a temporary stabilization through the concept of relation and rhythmic in Critical Realism (see Wallace 2011, pp. 148-150):

The essential geo-historical constitution of an object is a result of rhythmicity that have previously occurred and are still reverberating throughout the ontological existence of that object.

Bhaskar 1993, p. 54, quoted in Wallace 2011 p. 149

Seen from this linear time perspective, then, experimental archaeology seems to embody that rhythmicity which aims in reverberating the causal reality of the archaeological record, resembling the concept of time crystals in physics³⁰ (albeit in a paradoxical way: see 7.8).

3.5.2 Experimental Archaeology in AOAMs: an epistemological crossroad.

In light of what Bhaskar has traced with regard to the experimental sciences and their context, either open or closed environments, it is necessary to illustrate some aspects related to the actual process of obtaining results, i.e., the form of scientific enquiry typically used in experimental archaeology.

To delve deeper into the experimental archaeology practice, seen from a processual perspective, or hypotetico-deductive process, experiments in closed settings have at their base controlled variables under scrutiny. Open-air, actualistic or contextual experiments have a set of unknown variables, some of which fall into the category of qualitative data, rather than just measurable data (Outram 2008, Rasmussen 2007). Also, discoveries can happen with single case studies, by highlighting a previously unobserved causal relationship between a set of variables that can be explored with further experimentation. One of the key aspects is the emergent awareness in researchers of the generative characteristic of experimental archaeology: empirical archaeology develops new questions, too (see above 2.2.1).

The epistemological key of experimental archaeology appears even more interesting when approached by a purely scientific perspective also from the “way of knowing” point of view. A recently published, broad study within the life sciences has traced the history of two apparently opposed “ways of knowing”: experimenting and collecting, in relation to the availability of big data (Strasser 2019, pp. 16-17 - these are analytical categories). Experimenting and collecting, some time ago seen as incompatible, are moving towards

unification through their confrontation with the scientific and technological evolution brought about with big data.

The epistemological cyclical nature of experimental archaeology, and its relationship with traditional archaeology and its structures of knowledge, seem to represent a good example of how these two “ways of knowing” actually meet and are coupled in the epistemological process (see Chapter 2). From the pure philosophical perspective of the social sciences, this dynamic “way of knowing” finds a convincing solution in the description of the subsequent epistemological processes (which include analysis and are iterative) used by researchers in open systems as envisaged by Roy Bhaskar (implications of the DREIC model³¹ in open systems: Bhaskar 2011, p. 4).

Bhaskar’s description finds its crucial point in a third “way of knowing” which in his term is defined as retroduction (sometimes also called abduction, Bhaskar 2011, p. 4). This, as stated above, is a cyclical epistemological process which uses both hypothetico deductive and inductive reasonings, such as the one which experimental archaeology does by starting with the analysis of the research object (collection-comparative “way of knowing”, traditional archaeology), highlights a gap or a potential and tests it (experimentation way of knowing), creates a reference collection (collection-comparative), re-interprets the original record enlarging its radius and gives birth to new research questions in a generative, ongoing process.

Returning to the above-mentioned life sciences study, it is relevant to point out that it had come to observe how the comparing/collecting dichotomy which characterised most of the history of the life sciences, was in fact virtually inexistent, but, most importantly, that big data provided an opportunity of a tighter collaboration among the two, bridging the physical gap between collections (museums) and laboratories (experiments) (Strasser 2019, pp. 258-262).

When seen from this perspective, most of the attributes that have previously been outlined regarding Archaeological Open-Air Museums (AOAMs) allow us to situate them, in essence, between museums and open-air laboratories³².

This is particularly evident in the current debate on how to preserve their collections, which are mostly experimental. This form of a collection is somewhat in conflict with the

traditional definitions of Heritage as a whole. EXARC has been fostering debate about the nature of AOAMs' collections among all its members (museums, universities, and independent activity members) since the definition of Intangible Heritage (UNESCO 2003; see Boylan 2006). Of course, AOAMs, which also perform research on their premises, attempted to search a new, more useful way to store data about their collections. There are currently a few projects looking to perform better in this field, as well as in terms of monitoring the maintenance of experimental structures and other collections derived from experiments. The potential significance of this data to Experimental Archaeology is so great that the matter is being discussed among stakeholders in terms of working to develop and appropriate database to include diverse kinds of relevant information and sharing that information through open access policies (see the RETOLD EU Project).

Returning to the example of the life sciences and the experiment/collection duality, we can observe that the output of an integration has shifted different "sciences" based on the apparently conflicting "ways of knowing" to a hybrid between the two, which has profited by the ease of data sharing and development of enhanced computer technologies (Strasser 2019, p. 261). Interestingly enough, this development is actually fostering a return to a more classic, natural science practice which, through technology, allows citizens to contribute actively to the production of knowledge. Public participation is again possible in science through what is usually defined as Citizen Science (Strasser 2019, p. 270, see Chapter 2 paragraph 2.4.2). Public participation is also one of the major aspects of AOAMs, and many experimental archaeology projects have been performed with both volunteers and visitors' involvement in their premises, with complete open access for the general public³³ (apart from the entry fee in museums, when present). The participatory aspect, as has already been highlighted in the attempt to contrast the examples of the mystification of archaeological knowledge in the Worlds' Fairs, had been identified as a possible way out from the ideological bias:

The public should be discouraged from absorbing mindlessly the message given by three-dimensional depictions [of the past] by being not only informed of the "as ifs", but being enabled to engage with the actual process of questioning the past. If the observer role

could be changed into an active interaction, some of the drawbacks could be set aside. [...] an active participation that might lead the visitor to create his/her own “symbolic universe”.

Comis 2006, p. 81

With this finally set philosophical and theoretical framework, this study can enter the field and perform data gathering activities.

¹ Hurcombe (2007, p. 12) attempted a different approach to the bridging of the “scientific” as opposed to the “social science” aspect of archaeology, thus implicitly confirming a hiatus between the two and relying mainly on post-processual developments in the social sciences only.

² Again, this is not a new fact in archaeology. Even Ingersoll and Macdonald (1977), who were writing about experimental archaeology and included archaeology within the social sciences (as a subdiscipline of anthropology according to the northern American tradition) have dedicated a part of their book to “quantitative experiments”.

³ This view is based on a conspiracy theory which, in my opinion, finds space to develop only because the methods of archaeology, starting with stratigraphy itself, are not successfully communicated to the public.

⁴ With the fundamental apportion of the natural phenomena which transform the archaeological deposits in the ground. See note 26.

⁵ Ian Hodder, in 1986 in his “Reading the Past”, strongly underlined these impossibilities and questioned the hard science model of the processual approach. His work welcomed archaeology into the post-modernism movement.

⁶ The Italian philosopher Giorgio Agamben, in his fundamental “Stanze” (1975), has depicted the development of a similar epistemological process analysing the Phantasmatic creative process in the Middle Ages and its outcome in the fetish obsession of late romanticism in the wider framework of western culture trying to reach its unreachable object.

⁷ Terminologies can possess a considerable difference across disciplines, but the common denominator is the conflict between two opposed and irreconcilable views, and therefore the use of the term “paradigm” is appropriate.

⁸ Uniformitarianism is here intended as it is applied to the perspective of the interpretation of the archaeological record, and not in the classical natural sciences perspective as it is divulged in the common archaeological thought (see Bahn 2005). This position is hiding yet again another assumption: that which assumes that the natural world is assimilable to the social world (see chapter 2, endnote 11). For a more recent discussion, see Dominguez-Rodrigo 2008, pp. 69-70.

⁹ Wallace (2011), in her critique of archaeological theory, has used the critical realist term “the epistemic fallacy” to describe this conundrum: pp. 52-54. See Bhaskar 2008, p. 26.

¹⁰ As I am sure to exist, and my existence is not limited to the “I” in this written text, this assumption is quite difficult to embrace. To deny my existence denies the existence of others too, and, ultimately, of any

object of inquiry. This position doubts entirely also about the existence of material culture or past societies. My research is not aiming to write a sophisticated discourse about a non-existent object of inquiry and has no claim as an auto-referential sophistic exercise. A method can be useful when it helps dealing with realities. The object of inquiry, study and research should never be anything other than reality, be it the reality of the past or our own inner reality. If we, though, as scholars, eliminate reality from our research because our method has convoluted and re-winded on itself, the advancement of knowledge, both about inner and outer reality, is brought to a halt.

¹¹ This movement, which is common in many countries, had a particular development in the US through the work of Erret Callahan (eg. the “Living archaeology projects”, or the Pamunkey projects, 1976) who gave birth to the thread of “primitive” technology, a thread which this thesis does not cover.

¹² It is somehow disappointing that, even if quantum mechanics is going far and fast, the only consequences which are currently academically accepted are those that involve metaphysics. Only quantum computing is winning international funding in the constant search for more powerful and faster digital technology. But this only indicates a cognitive difficulty in grasping the full potential of quantum physics, it does not imply quantum physics to be a poor scientific procedure.

¹³ A small test was performed during an experiment on crucible durability which was aimed at testing different kind of tempers contained in the experimental vessels’ ceramic body. The measuring protocol involved taking records both of the time and of the temperatures reached by the single crucibles, in order to ascertain which one reached the necessary durability to obtain the melting of the alloy. Yet, when these time measurements were listed by progressive duration only and matched to the successful melting of the alloy, the results of the experiments were immediately clear. Time or temperature were not relevant as meaningful variables in the analysis of the experimental data: the durability of the crucibles was not related to the melting temperature of the alloy. The *real* variable was the thermal property of the temper, in this case crushed quartz, which resulted in an anomalous behaviour when listed in progression of linear time with other tempers’ results. The so called “order effect” in the agency of measurements in this case provided a quantum oblique and faster evaluation of the results and generated a secondary hypothesis (Wendt 2015, p. 157-8. See Appendix n. 2).

¹⁴ A massive amount of literature has been produced in Critical Realism and Critical Social Science, both from a purely philosophical point of view and a practical research point of view. In the most recent short overview on Critical Realism, Bukowska defines the model developed by Bhaskar as “a philosophical approach that proposes how knowledge about people and social structures can be developed, interpreted and described” (2021, p. 441). The interactions between a critical realist perspective and archaeology and experimental archaeology could stimulate much discussion and possible solutions in those fields. At present, I am unaware of other attempts apart from Wallace (2011) and the author. In this work, difficulty of access and prohibitive costs, together with other limitations, have drastically reduced the possibility of deepening the most recent developments of Critical Realism in the social sciences. Even so, since the theoretical issue about ontology and epistemology discussed in experimental archaeology seems to be the crucial aspect to be tackled, it was felt sufficient to deal with the core first wave of Critical Realism.

¹⁵ It has to be noted that in his 1979 work, Bhaskar criticizes Popper’s philosophy (p. 11; p. 31) correlating it to Hempel’s position regarding causal laws, and refuses falsification as well (p. 49). This thesis holds a different position, directed to acknowledging the same ontological weight to the absence of validity for a hypothesis (falsification) as to the importance of absence in critical realism. Also, from a materialistic point of view, i.e., as applied in the realm of material record in archaeology, indeed the fixed laws of science do apply to that specific layer of reality, and thus the Popperian principle of falsification is applicable.

¹⁶ Emergence and Archer’s morphogenetic approach could be useful to deepen the understanding of those patterns (Archer 1995).

¹⁷ Even if this aspect is being discussed at present in the light of the latest developments within critical realism: see forthcoming 2021 issue of the Journal of Critical Realism.

¹⁸ Yes, underlabourer. Bhaskar, in one of his last lectures, explains how this term was adopted from a wonderful metaphor by Locke: “it is ambition enough to be employed as an under-labourer in clearing the ground a little, and removing some of the rubbish that lies in the way to knowledge” (Bhaskar in Hawke 2017, p. 7). Wallace (2011) re-uses this metaphor in her contribution to archaeological theory through a critical realist approach.

¹⁹ Yin 2014 p. 34: a complex social phenomenon is a phenomenon in which the context (external data) is not clearly defined from the subject (the phenomenon itself).

²⁰ See the concept of ontological emergence in Wallace 2011, pp. 76-77, cited above in regard to Bhaskar's philosophy. The works of Margaret Archer have developed to a considerable extent the concept of emergence.

²¹ At the material level, or at the level of "material transactions with nature", as defined by Bhaskar (Bhaskar 1979, p. 3)

²² In the words of a philosopher:

"[...] the un-lived past reveals itself for what it really was, namely contemporaneous to the present, and becomes for the first time accessible as a 'source'. For this reason, contemporaneity, the co-presence to one's present, is rare and difficult, as it implies the experience of an un-lived and the memory of an oblivion; for this reason, archaeology, by going back before the split between memory and forgetting, is the only way of accessing the present that exists". Agamben 2009, pp. 225-226.

²³ This aspect deserves careful consideration, in my opinion. In the field of analytical psychology, and archetypal psychology, much could be investigated about experimental archaeology activities and the effects on the individual and collective psyche. The experiences usually lived in experimental archaeology are very powerful and engaging and most of the times leave an indelible memory within the participant. Just a glimpse of the enormous number of images which are produced and shared in social media, can give some idea of how impactful the impression of the "return of the past" is through experimental archaeology practice. In other words, and as previously described, the projected past (or animated, in an archetypal psychology perspective) which is created, lived and shared might have unpredictable outcomes on the collective unconscious, too (Jung 1959).

²⁴ What would happen if a different concept of time is applied to the context? The words used to describe the progression of time as a linear dimension are the same used in Physics to describe the problem of "time", as research on this field is yielding many interesting perspectives. See below note 26.

²⁵ This scheme has been drawn simplifying and amending the in-depth study on archaeological praxis by Linda Hurcombe (2007, see p. 16 for a more complex scheme).

²⁶ For the sake of simplicity, the metamorphic modification of soils or of entire stratigraphic sequences occurring during natural events have been omitted from this procedural explanation, but are of course present and considered by archaeologists.

²⁷ From the ancient Greek word ἀρχή, which literally means "origin". This is a sort of "pun", since in the English language tradition, the word "archaeology" is etymologically linked to the ancient Greek "archaia", meaning "ancient things" (see Encyclopaedia Britannica, *ad vocem*). Here, instead, it is linked with "arche", to reinforce the belonging to the causal reality of the archaeological record itself.

²⁸ This point excludes of course all the inference which can be acquired regarding the material chemical and physical reality of the archaeological record itself and its natural modification in the time prior to the excavation, which is pertaining to the domain of science and to the laws of nature.

²⁹ The ontological approach to the distinction of the root characteristics of the archaeological record is also contrasting the more common epistemological linearity approach: that which holds true the possibility of inference from past incomplete objects to the thought that produced them in the first place, with no acknowledgment of any assumptions on which this thinking is relying upon. This point of view, albeit recognising the distance in time that separates us from past societies, suggests a purely hermeneutical solution (Shanks & Tilley "fourfold hermeneutic", 1992, pp. 107-8).

³⁰ Quantum Time crystals were first theorised by Wilczek in 2012 (see also Zakrzewski 2012). After a re-discussion of their definition and characteristics, a model was developed (Yao et al. 2017) and finally discrete time crystals were observed (see Nature 543, March 2017) and experimented upon in different parts of the world. See Ball 2021 for a short account of the most recent acquisitions on these "temporal analogue of ordinary 'space' crystals" (Ibidem).

³¹ The DREIC model stands for Description, Retroduction, Elimination, Identification and Correction. Bhaskar defines correction as: "correction of earlier findings in the light of a (temporarily) complete explanation or analysis", and this is why the model is cyclical (Bhaskar 2011, p. 4).

³² See discussion in paragraphs 2.2.1, 3.4.1, 6.2, 6.4.

³³ Apart from the German example cited above (Heeb 2019); the most relevant and long-lasting example is the Danish AOAM situated in Lejre (DK). Born as a research centre from the opening in the 1960s, it has changed its name and vocation towards edutainment in the early 2000s (Paardekooper 2012, p. 94), but still endorses the participatory aspect of their activities (See Sagnlandet Lejre About Page website; Hansen 1977, 1986; Rasmussen 2007). For many years, thanks to a dedicated funding, the AOAM hosted experimental archaeologists from many countries to perform their experiments on the museum's

Lara Comis – Exploring the uses of Experimental Archaeology in European AOAMs – a critical study.

premises (author included: Comis 2009a). Experiments which could directly involve the public were particularly cherished by the museum. Protocols, reports, and results should still be present in the internal Archive of the Museum and a summary of all the experiments from 2001 can be found in their “Scientific Research” webpage (Sagnlandet Lejre Scientific Research Webpage). Individual AOAMs perform different activities related to experimental archaeology in a scientific perspective (see Butser (UK): Current Archaeology News November 1, 2021). By far the most complete experimental archaeology project with the active participation of lay persons is the ongoing “Putting life into Neolithic Houses” project, conducted by the University of Leiden (NL) (see the Putting life into Neolithic Houses project webpage and the EXARC Putting Life into Neolithic Houses news page (2020).

4

European Trends: Mapping. Online survey data analysis.

4.1 Introduction – Research and Experimental Archaeology – Word Frequency Query.

The crucible of this study is the research channel of interaction between Experimental Archaeology and Archaeological Open-Air Museums (AOAMs). One of the key aspects is therefore to gain an understanding of the topic of secondary research questions. How is research embedded in both experimental archaeology and AOAMS? How does research “shine through” in the outreach and communication that stems from each of these fields? These questions were addressed in this section of the research in order to get a general glimpse of the current situation at the European level. One way to search for a basic answer to these questions is to look for current trends on the internet. In other words:

- How is research promoted in experimental archaeology on the internet?

This is an important question and addressing it may prove be very useful as an active part of the promotion of research facilities, including both academic centres and AOAMs. The results of a deeper analysis could be structured for further action, adopting marketing research protocols and subsequently, marketing tools for promotion. This thread could

have been woven into some more substantial promotional toolkit as a spin-off of this study¹.

So as to attempt a sketch on which to start delineating a map of the current situation, it was deemed useful to extract data in a visual way from internet pages pertinent to experimental archaeology and AOAMs by running a word frequency query (Kirk 2016, p. 174). The purpose of a word frequency query is to draw inference from the frequency of the use of a specific word, in this case the word “research”.

A fundamental assumption was made regarding academia; the link between research and experimental archaeology was considered as fundamentally a given, therefore no word frequency query was performed on academic webpages. This connection was explored more in greater detail in the online survey; however, the results did not entirely confirm the assumption. At this stage, the word frequency query was performed with full awareness that taking into consideration just the frequency of a word is insufficient for the detection of relationships between concepts and might be biased according to the language in which the information is shared and in how users conceptualize the word itself. Moreover, given that this is an initial pre-evaluation, the pages selected were few and thus cannot be considered a comprehensive overview of the phenomenon, even though the selection considered relevance for a wider audience and reputation in the field. While acknowledging these limitations, the mere frequency of the word “research” can give a general, symptomatic idea as to how important this aspect is in connection to experimental archaeology and AOAMs.

The analysis was carried out on the Wikipedia pages on experimental archaeology in English. These were considered to be a collective created content, a first step for the internet users who would like to approach the topic. Italian, French, German, Spanish languages were analysed too (see appendix n. 3 for applied protocols, software used and visual representations of results).

The word “research” occurs very few times, respectively one single time in the English language page (fig. 4. 1)², 7 times in the Italian language page, three times in the French language page.

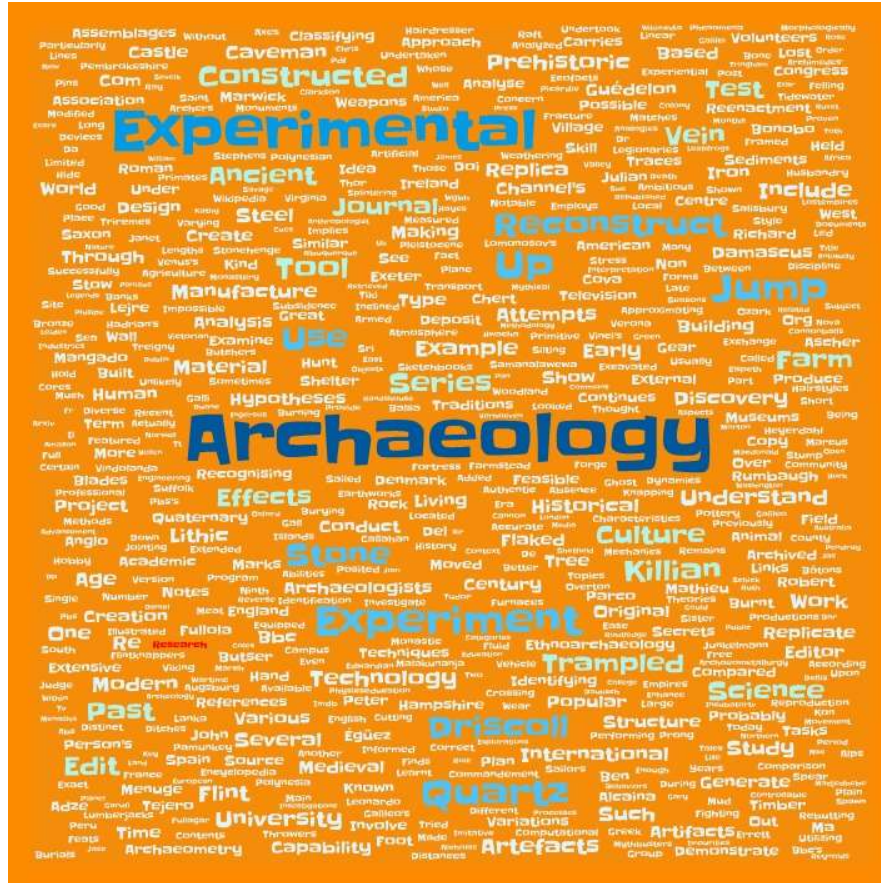


Figure 4.1 Word frequency Query; page on Wikipedia (English language) for experimental archaeology. Word “research” occurrence: 1.
https://en.wikipedia.org/wiki/Experimental_archaeology [accessed 22/01/2018]

The scarcity of frequency in the collective Experimental Archaeology Wikipedia page of the word “research” may expose a superficial attitude towards experimental archaeology in relation to research in the English-speaking community.

A second query was performed on the Butser Ancient Farm Website, in order to assess anecdotally whether or not the same scarcity of frequency applies in this internet presence of the British AOAM (Reynolds 1979, Reynolds 1999b, Hurcombe 2005, p. 83). The word frequency query run on four pages of the Buster website: the home page, the about page, the news in the related blog, and finally the dedicated “research” page (see Appendix 3 and fig. 4. 2).

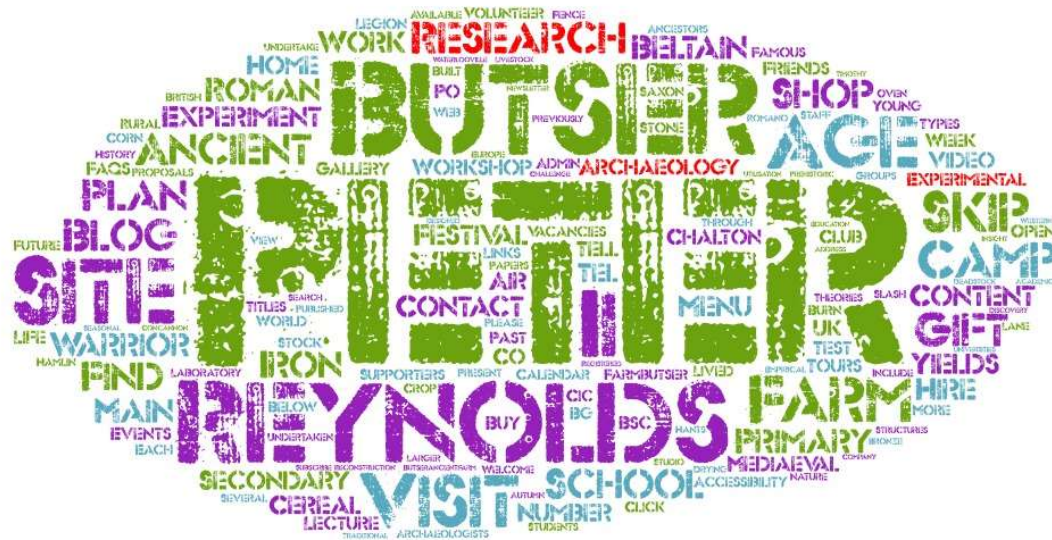


Figure 4.2 Word frequency query run on the Butser Ancient Farm research page. Accessed and performed on 12/2/2018 (see appendix n. 3 for protocols).

The query on the “research” page returned a good number of occurrences, and this page is the first one among those analysed in which it occurs more times than experimental archaeology. But it is the frequency of Peter Reynold’s name which, in this case, attests to the paucity of links between the AOAM itself and research. As we saw in the previous chapters, Reynolds had a fundamental role in experimental archaeology meta studies and was also the founder of Butser Ancient Farm³. It appears that the research component, as expressed on the Butser’s Website, relies upon a strong connection with the reputation of its founder.

The results of this very quick visual analysis of the occurrence of words, albeit limited and anecdotal, highlights the need to delve deeper into the themes of experimental archaeology, research and AOAMs. The nexus with research seemed to be very tenuous, and the reliance of individual personality for reputational purposes was indicative of the reliance on the past, rather than on present activities.

The complexity of the issue had to be investigated in a deeper, systematic, structural way in order to assess the relevant roles, relationships, and practices currently involved in the practice of experimental archaeology and in AOAMs. An online survey was designed and launched to assess the landmarks within this system and map them.

4.2 Questionnaire design. Online survey.

This section illustrates the construction of the questionnaire for the online survey. The survey was aimed at defining or at least beginning to define best practices for experimental archaeology activities in AOAMs as well as for other related realities and practices involved and how they eventually correlated to research.

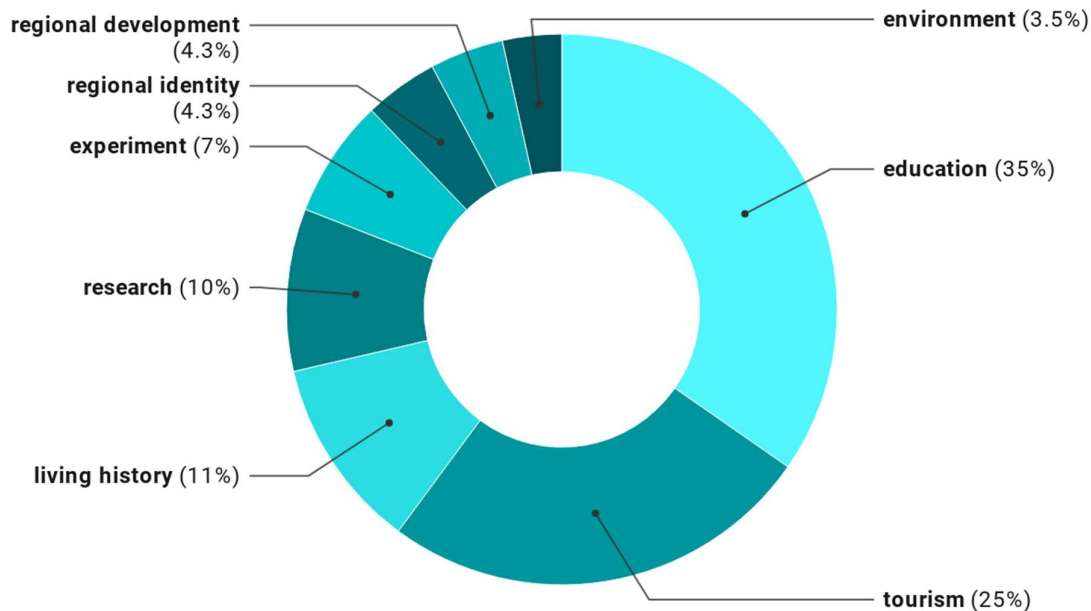
Previous work on the subject is limited and was not performed with clearly defined methodologies resulting in weakly structured, rarely comparable studies and uneven results. More importantly, some studies dealt only with AOAMs, and their focus was not aimed towards detecting best practices in a research perspective in a clear, relational manner. Nor did they include all the satellite entities involved in the relevant activities. Some rare examples of carefully collected data relating to single museums, albeit succinct in their communication, are of fundamental importance in the development of a survey designed to trace the link between research and experimental archaeology in AOAMs. Such is the case for Sagnlandet Lejre (DK)⁴, which produced a short but detailed survey of its performance from 1964 to 1984, including outreach and publications of the experiments carried out in the experimental centre (Hansen 1986, pp. 18-25). Even if the author complains about the scarcity of publications compared to the activities performed in the centre (p. 19), it is notable that the evaluation of the open-air institution included them in the first place. Also, it must be noted, Lejre had the opportunity to make use of a fixed amount of money to promote external researchers in the performance of their experiments within the grounds of the experimental centre, although only one fifth of their financial resources could be used for their own internal research activities (Hansen 1986 pp. 23-4, Rasmussen 2007 for a more recent project).

A more comprehensive work was published by Paardekooper in 2012. It was performed with the aim of taking a snapshot of the existing situation in AOAMs by investigating the management systems and the visitors' satisfaction (Paardekooper 2012,

p. 69). It used surveys across a wider scale to monitor the phenomenon. It also involved a deeper assessment than what was previously performed on single instances by working with a selected number of museums within the framework of an EU Culture Project (*liveARCH*: Paardekooper 2012, p. 25). The work by Paardekooper, performed during few years and with the collaboration of the EXARC Network, is the most complete and useful work on European AOAMs in the English language so far. His work provided the benchmark for most of the aspects investigated during the online survey.

Within Paardekooper's deeper inquiry, museums managers were asked to evaluate a series of keywords when describing their own museums. Among the keywords, the most frequent was "education", followed by "tourism". "Research" and "experiments" followed "living history". It seemed that, thematically speaking, the situation as mapped by Paardekooper evidenced the potential for the use of research and experimentation within AOAMs, even if the most frequently identified themes remained those of education and tourism (see fig. 4. 3, from Paardekooper 2012, pp. 104-105).

Going deeper in the survey of the selected AOAMs, Paardekooper also notes the incidence of publications for each museum (2012, p. 220, fig. 6.17) and the self-reported relevance of research activities in the financial reporting of the museums (p. 211, fig. 6.09). When comparing these two aspects, some discrepancies can be seen, as some museums devoted no finance to research and yet published a relevant number of papers regarding the research in the museum (promotional material excluded). The finances which were utilized to publish research should be investigated further, as they may reveal essential data for strategic management purposes. Another interesting aspect was the question addressing museums doing research using their own collections (be it tangible or intangible), and who was involved in these research activities (Paardekooper 2012, p. 218, fig. 6.15).



Total museums 129. Total entries 328. Second survey.

Chart: Lara Comis • Source: R. Paardekooper 2012 p. 104-105, figure 4.19 • Created with Datawrapper

Figure 4.3 AOAMs' keywords (from Paardekooper's Survey 2011).

An aspect that seemed to acquire importance at the time of Paardekooper's research was that of local identity (Paardekooper's second survey: 2012, pp. 90-94 and the relevant cases). This aspect, which, if adequately considered, might improve excellence in an AOAM (as noted in Paardekooper's recommendations for museums: 2012, p. 280), seemed to embody the notion of the *genius loci* as described previously in the second chapter (Comis 2009b). By linking humans with their specific environment, Paardekooper highlights how the "local, unique face" that AOAMs can develop is going to be useful also for the present, and not only to illustrate the past (Paardekooper 2012, p. 280). In other terms, the concept of *genius loci* underlines local sustainability implications.

A more recent contribution, practically contemporary with this study and the launch of the online survey, was carried out by Paardekooper himself in 2018 (Paardekooper 2019). This brief and anecdotal work (Paardekooper 2019, p. 3), reiterates most of the previously described themes, and highlighted the chaotic perception of experimental

archaeology within the museums themselves, as well as painting a picture of a very cloudy link with research.

So far, no comprehensive study has been performed on the dynamic among experimental archaeology activities by linking the three entities involved (academia, AOAMs and related activities in the real world). The above-mentioned research is not explicitly methodologically or theoretically set, is limited to one specific entity as a starting point, nor it is entirely replicable. In other words, the great diversity of approaches to the theme from always different perspectives does not allow this work to be set in a strictly comparative advancement of the already acquired information. The impossibility of relying upon the validity and repeatability of the above-described contributions, despite their usefulness, precludes a much-needed chronological comparison of data. When a comparison was possible, the survey design has taken into consideration previously addressed issues. As for other aspects, the information gathered in those studies has been taken into consideration as indicational only, and all efforts were made to adhere to the most rigorous requirements for this work to meet the standards of validity and repeatability, and research integrity ethical standards of the social sciences. By providing a clear indication of the methodology and the procedure employed in this research, it is hoped that future scholars will fine-tune them and further the study of the addressed social context in years to come.

4.2.1 Target, themes, and content

This thesis is an exploration. In the contemporary academic practice, a social science approach to experimental archaeology is quite new. A good metaphor to illustrate the inquiry is that of a partially unknown territory, one that needs a map. But, since in this study experimental archaeology practice is looked upon from an axial social dynamic interaction perspective, as previously underlined, other levels of enquiry were introduced in addition to the basic primary level of mapping. The only way to provide an explanation for a complex social phenomenon is to also clarify its relational depth (see Chapter 3).

The mapping of best practices involved examining the interactions among three main units of analysis or categories: AOAMs, Academic Institutions and Independent Activities. Extending the relational aspect to also include academic institutions and independent activities, rather than focussing only on the museums, was a choice made to include, on one hand, the academic institutions as the creators of the causal information needed to perform the activities, as well as trying to underline their social responsibilities (see Chapter 2). On the other hand, the inquiry grouped volunteers, professionals, and other similar actors in one single category, in order, firstly, to assess the internal segmentation within this group and the impact on the dynamic, and secondarily to provide them with an actual role in the dynamic itself. As a matter of fact, little structured attention was found to have been given in the studies mentioned previously to the wider network of other agents orbiting around institutions (museums and academia).

The threefold dynamic relationship (AOAMs, Academia and Independent Activities) was investigated to assess its internal structure and content with the aim of detecting the meeting points, the frictions and the overall interaction model through a qualitative questionnaire. As well as providing preliminary data to map the dynamic, it was hoped that the results could provide also internal triangulation of the issue under scrutiny. The main purposes were that of understanding the perceptions of experimental archaeology activities and research, to evaluate the potential in relationship and communication among the subjects and the extent of channels of mutual communication.

Comis 2019c.

The questionnaire was also designed to investigate the possibility of assessing the current constellation of meanings grouped under the term “experimental archaeology” (Comis 2003, Paardekooper 2019; 2011, p. 69). Instead of super-imposing a view or a definition under which the entries could be inserted, the topic was approached by giving respondents the opportunity to insert text in response to open ended questions (Comis

2019c). The textual data was successively coded from a purely qualitative perspective (see below).

The only discrimination of content introduced in the questionnaire was the distinction clearly given between “experimental archaeology” and “ancient technology demonstrations”. It was hoped that, through this input, the respondent would have had the opportunity to reflect about the difference that exists between actually investigating the archaeological material record, and communication through demonstrations to the public of what had been already investigated (Comis 2019c). The same differentiation was highlighted by adding other activities defined as “ancient technology demonstrations”. This term was purposely used as a means to stimulate reflections on the difference between experimental archaeology and ancient technology practice. It was felt that this difference is crucial to identifying the gap that exists between research-driven activities and demonstration activities.

KEY DISTINCTION INPUT

Experimental Archaeology is NOT ancient technology practice

The survey was also trying to map the potential of research activities conducted with the active participation of the public and to trace the HR (Human Resources) roles and relationships existing in this Heritage sector work market. It was hoped that this first evaluation could have returned data to assess the potential application of Citizen Science protocols in the best practice model.

The questionnaire was not designed to elicit any explicit response regarding the previously identified overlap between the three fields of research, education, and tourism (Reynolds 1999a, pp. 156-158; Comis 2003; Outram 2008, p. 3). This factor was investigated from the ground up during the qualitative coding. The same was done with methodological and theoretical aspects of research: in this theme too, no explicit requirements were introduced in the questionnaire. As already stated, the potential or actual active participation of the public, or of the local community, in research activities was considered

to be higher on the scale of excellence in the spectrum of the activities: the survey was probing the testing of the working hypothesis (see 2.4.2), by checking for the actual existence of the virtuous cycle that could provide, on one hand, the visitors with a constantly renovating experience, and, on the other, a positive return to research about the past, thus healing the fracture between research and public outreach while also possibly overcoming some of the drawbacks of careless heritage communication (Comis 2019c).

4.2.2 Questions

[...] “it looks authentic”. And it sells. No need to worry about it as long as real experimental archaeology continues to explore the questions we want answered.

Coles 2009, p. 67

What is happening in Experimental Archaeology and AOAMs across Europe? Drawing on Cole’s sentiment, should we worry about whether an experimental archaeology that actually investigates the past still exists among the plethora of activities which are sold with that name in education institutions and museums? And, for scholars, isn’t it about time to approach the methodological debate since visitors are already in contact with ideological reconstructions of the past? Are experimental archaeologists aware of what research *is*? Are they aware of their positionality and their social responsibility? Do they have research ethics protocols to share with the wider scientific community? Might it be possible to enable visitors to actively engage in the questioning of the nature of the past as a means to providing them with the tools for developing their own critical perceptions of the past? In short, is there actually any potential for Citizen Science in Experimental Archaeology in AOAMs?

A series of questions like those above were produced and then “distilled” in order to meet the highest simplicity as possible for each of the categories of respondents (Cohen, Manion and Morrison 2011, pp. 377-408). The only input given to the respondents was

embedded in the structure of the questionnaire itself, rather than suggested by the actual textual content of the questions. See the following paragraph on methods for the description of the distinctive aspects of the logical passages as they were applied to specific questions. In the contents, no explicit reference was made to definitions or specific didactic content except for the distinction between experimental archaeology and ancient technology mentioned above. The intent was to give liberty to the respondents to increase responses which could be qualitatively analysed.

Open ended questions were placed where a deeper qualitative analysis was expected and were designed to detect emergences (new findings) and patterns in the data (see below, 4.8). The horizontality of these “open spaces” (in green in the table below) were also meant to return comparable data from the three-fold perspective according to each category of respondents.

The table below illustrates the structure of the questionnaire and gives the relevant summarized content for each question, as well as indications for the addressed category of respondent (fig. 4. 4).

The full questionnaire, in the form it was given to the respondents, can be found in Appendix 4.

Questionnaire Structure - Online Survey 2018

Exploring the Uses of Experimental Archaeology in European AOAMs, Lara Comis 2018

Questions		DATA PER CATEGORY		
Master Data Q1		Name, Location		
TYPE Q2		AOAMs	Academia	Ind. Activity
Time		Foundation date Q3		Start of activity Q31
Administrative info		Foundation body Q4	Position – contract Q21	Volunteers/professionals Q32
Quality		GENIUS' RADIUS Q5		
Cross category analysis	Experimental archaeology activities	Yes No Q6	Teaching level Q22 – year – Q23	Yes No Q33
		Open ended descr. Q7		Open ended descr. Q34
		Who?		
		HR Q8		
Research		Institutional/occasional Q9/Q10	Yes No Q24	Sources Q35
			Open ended descr. Q25 When Q26	
		Sources for artefacts and buildings Q11/Q12		Ancient technology demos? Q36. Open ended descr. Q37
Who? Where?	Who? Q27	HR Q13		Where? Q38
Mutual relationships – potential analysis		Contribution to research? Yes No Q14	Contribution to AOAMs? Q28	Contribution to research? Q39
		Open ended descr. Q15	Why? Open ended descr. Q29	Open ended descr. Q40
		Link to academia Q 16	Link to AOAMs Q30	Link to academia Q41 and AOAMs
		Open ended Q17	Open ended	
		Contribution to academia Q18/Q19		Contribution to academia Q42/Q43
		Link with visitors Q20		Contribution to AOAMs Q44
Q45	Participation in the research	Test availability and interest	Test availability and interest	Test availability and interest

Source: Comis 2018 • Created with Datawrapper

Figure 4.4 Online Survey - Questionnaire Structure.

4.2.3 Method and ethics

The survey itself was distributed primarily through email to EXARC members in June 2018 and then published on social media (Facebook) with the use of a non-traceable link. The campaign lasted for three months and ended in September 2018.

Considerable work was done to comply with the newly introduced Privacy Policy Regulations at European level (GDPR, in effect since the end of May 2018: Handbook on European data protection law 2018). Training was also obtained in research Ethics⁵ in order to produce a fully informed consent privacy statement. All traceable data were pseudo-anonymised to ensure anonymity for full privacy protection⁶. An opt-in question⁷ was provided to allow those respondents who were eager to take part in the following stages of this research to explicitly say so. Their privacy was protected according to the GDPR regulations.

A conflict arose with the Higher Education Institution (HEI) regarding the 50th paragraph of the GDPR EU Regulation, as the Institution insisted on gathering data for profiling purposes such as sex and age of the respondents. This was beyond the legitimate interests of the research itself and in conflict with the intention of protecting the privacy of the research participants, so carefully regulated by the EU. It is possible that this misunderstanding arose from the fact that the questionnaire was designed to be as short and simple as possible, following general guidelines used in the social sciences and in marketing research (Thwaites Bee & Murdoch-Eaton 2016, pp. 210-2; Czaja & Blair 1996). It did not, however, have any marketing research purpose, nor was there any gender dimension to the research questions at this stage of the study since the PhD proposal (November 2016). Thus, the survey, as performed and presented, did not touch upon any content that was considered to be a matter of personal privacy.

As discussed above in Chapter 2, the theoretical framework of the survey relied upon Critical Social Science principles applied to online social science research (Neuman 2011, p. 108-114; Salmons 2016, p. 21) and was intended to provide integrated mixed data (both qualitative and quantitative).

The sampling strategy used internal triangulation (Tashakkori & Teddlie 1998, p.41-42, Yin 2018, p. 128) by targeting the three different categories of respondents in selected areas of the same topic. In other words, the sampling was performed with a “non-random stratified” strategy, where a specific part of a subgroup (stratum) was utilized and selected according to the respondent’s feedback (another terminology for this protocol is “quota sampling”, see Tashakkori & Teddlie 1998, p. 76; Gibbs 2018, pp. 138-39).

There were five steps taken in carrying out the survey: survey design, testing, final adjustments and planning, data collection and data analysis.

During the first step, efforts were made to produce clear and simple questions, their core content having been extrapolated from the research questions. In designing the questionnaire, the open-ended questions were kept to a minimum, while the close ended questions were intended to test the agreement scale principally using Likert-type scale (3 grades, Tashakkori & Teddlie 1998, p.103). The questionnaire was therefore designed to return elicited data from the respondent and the researcher put in the “gardener” metaphor (Salmons 2016, pp. 7-8, see Chapter 1).

A draft of the questionnaire was then tested with an internal pilot of one-week duration, being distributed to 12 volunteers within the HEI (Cohen, Manion and Morrison 2011, p. 402). The objective of the test was to evaluate the appropriateness of questions, the clarity of instructions and the effectiveness of the survey itself. 7 respondents gave feedback on the questions, on the phrasing, on the flow and finally some insights regarding the content of the questionnaire. The questionnaire draft was then amended according to the respondents’ suggestions. Finally, the questionnaire was promoted and presented at a conference in Northern Italy which took place during one of the most established events dealing with educational hands-on activities in that area, and which also hosted the International EXARC AGM (Paleofestival 2018, La Spezia, IT May 2018; Comis 2019a).

The timing of data collection followed a two-week schedule. The first group of respondents, i.e., EXARC members, were contacted directly through email (after having obtained full approval from the EXARC AGM on 26th May 2018). Two weeks later, the questionnaire was shared on social media using a hyperlink. After a further two weeks, an email was sent to recipients on a publicly available contact list of emails from Universities

and Research institutions at which Experimental archaeology is either taught or used as a research tool. A final email was sent before the closing date to prompt answers from non-respondents.

The online software to design, distribute and analyse the questionnaire (SmartSurvey) was selected on the base of GDPR compliance and on budget considerations. It was possible to maintain a constant monitoring to assess the distribution of the questionnaire and status of the responses.

4.3 Online Survey Results.

This section discusses the results of the survey. Preliminary results (mainly quantitative) were disseminated at two international conferences, in Kernave (LT) in September 2018 and in Trzcínica (PL) in the following October and were published in concise form, with limited illustrations and discussion, in the EXARC Journal (see Comis 2019c). Network analysis results were disseminated at a later international conference (EAC11, Trento, Italy: Comis 2019b).

The survey returned 284 responses of which 183 were complete. Only complete surveys were analysed. Despite, or because of, the short time window during which the survey was available online, this is quite a good result. Even if the survey was not planned to return statistically relevant data⁸ but to provide textual data for qualitative analysis primarily, the expected numbers were remarkably lower.

The size of the sample was not intended to reach statistical validity, but qualitative indications and trends

Comis 2019b

4.3.1 Master data: distribution and categories.

Although the research was set explicitly in the European context, individuals from countries in other regions also responded to the questionnaire. Their responses were considered for the purpose of a general overview, while different analytical choices were made for the in-depth analysis (see below). The previously published map that illustrates the geographical distribution (fig. 4. 5: Comis 2019c, fig. 1) shows that only five countries returned more than 15 responses: The United States, Ireland, UK, and Italy. This uneven distribution is not likely to represent of the “lack” of potential respondents in other countries. More probably, they were simply not reached by the survey. It is probable that the choice to deliver the questionnaire in a single language has created language barriers. Nevertheless, the presence of some respondents from South America, Russia and Asia shows the flourishing potential of networking for establishing a stable dialogue with relevant and well-established institutions and/or practitioners in other continents.

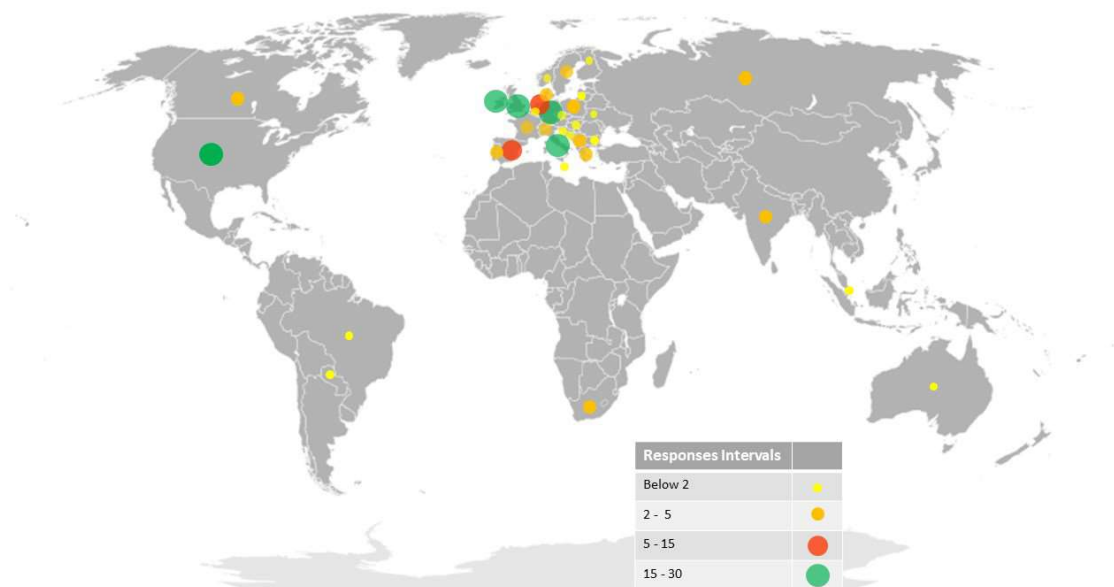
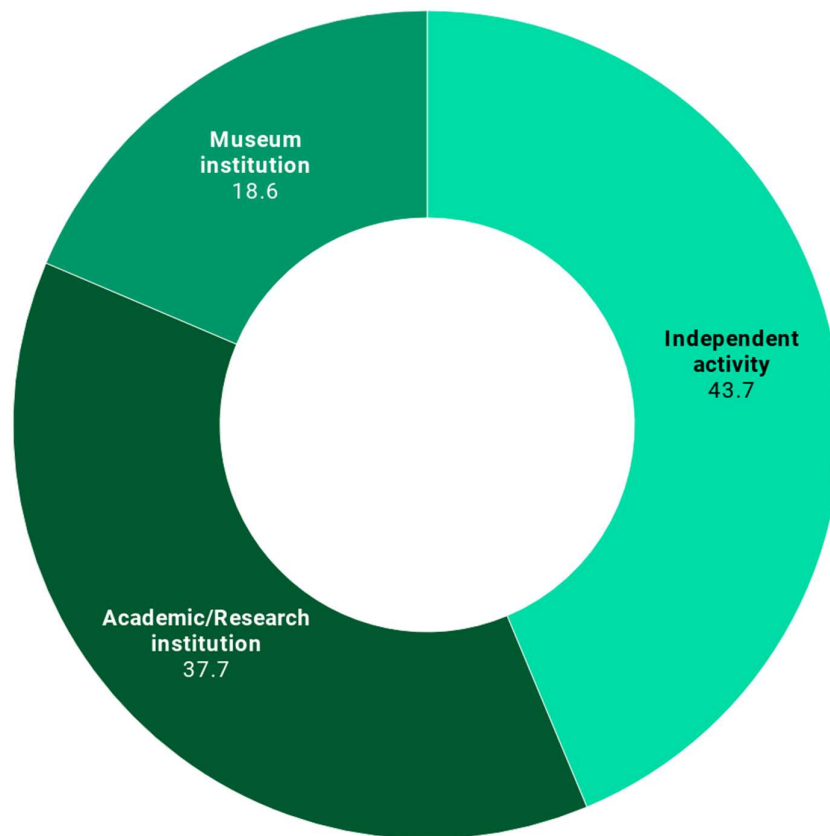


Figure 4.5 Survey on Experimental Archaeology Best Practices 2018 – PRELIMINARY RESULTS. Geographical distribution of responses. From Comis 2019c, fig. 1.

The number of responses were, as the graph in figure 4.6 shows, 80 for the Independent Activities category, 69 for the Academic/research institutions category, and

34 for the Museums category (Fig. 4. 6). The figures are not particularly relevant in terms of comparison across categories: Academic and Independent Activity responses were, in fact, mainly individual responses, whereas responses from Museums were institutional and, thus, were not immediately ascribable to individuals within the institution (Comis 2019c).

■ Independent activity
■ Academic/Research institution
■ Museum institution



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Chart: Lara Comis • Source: Comis 2019 • Created with Datawrapper

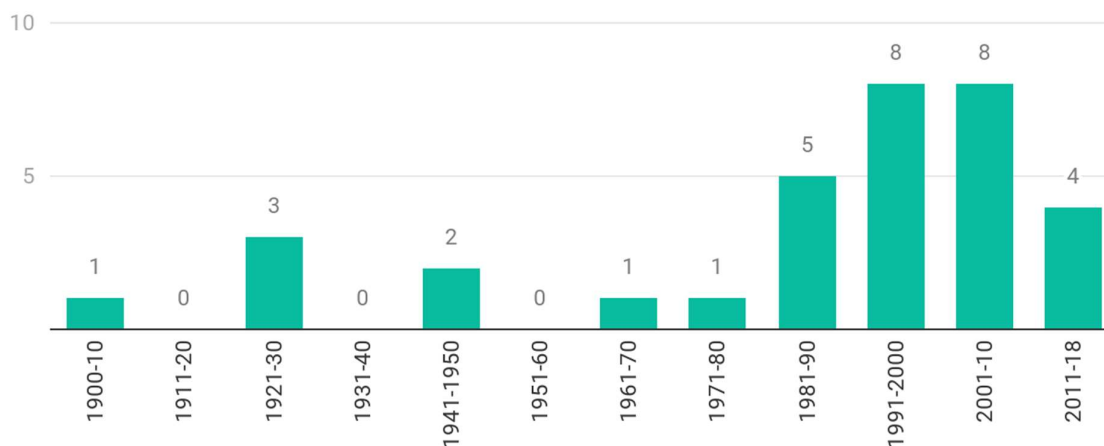
Figure 4.6 Respondents per category. Online survey 2018-Q2.

An illustration of the integrated data results for each category will be given below.

4.4 Museum Institutions

Museum Institutions' responses were 34 in total. Although this can reasonably be considered a low number (see Paardekooper 2020, p. 8, and the EXARC Venue page), the sample shows an interesting collection of institutions' characteristics that broadly reflect the central ones shared by most AOAMs.

Following the work by Paardekooper (2012, p. 97), the time distributions of their founding dates was enquired upon to investigate the most recent trends in the AOAMs phenomenon. The founding dates stated by the AOAMs' respondents covered a time span from the beginning of the last century to the present day (2018) (Fig. 4. 7, Q. 3). Compared with the 2012 results (for 225 museums), founding dates seem to harmonize with the trends, and seem to indicate that the phenomenon has encountered some growth in recent years, although not comparable with the numbers of the late 1990s and early 2000s.



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Chart: Lara Comis • Source: Comis 2020 • Created with Datawrapper

Figure 4.7 AOAMs- founding dates distribution. Online survey 2018-Q3.

More than 20% of the respondents stated that their institution was founded by governmental bodies. In addition, some of the founding agents specified as “other” by

some respondents, included entities which can still be considered as governmental bodies, as they refer to local authorities, such as councils or town halls. Paardekooper has noted the difficulty in categorizing this situation in his survey (2012, pp. 53-56). Grouping these “others” with the primary category “governmental bodies”, means that more than 30% (12 respondents) of the total number can be considered to have been founded by governmental bodies and institutions. After this, the founders were: non-profit organizations, local associations, and lastly private companies. Few examples of joint foundations were given in the open-ended text boxes (fig. 4. 8, Q. 4).

None of the respondents’ institutions was founded by Academia or research institutions directly. Given the overall topic of this thesis, this absence is quite significant as the existence of such typology was hoped for, especially in the analysed sample.



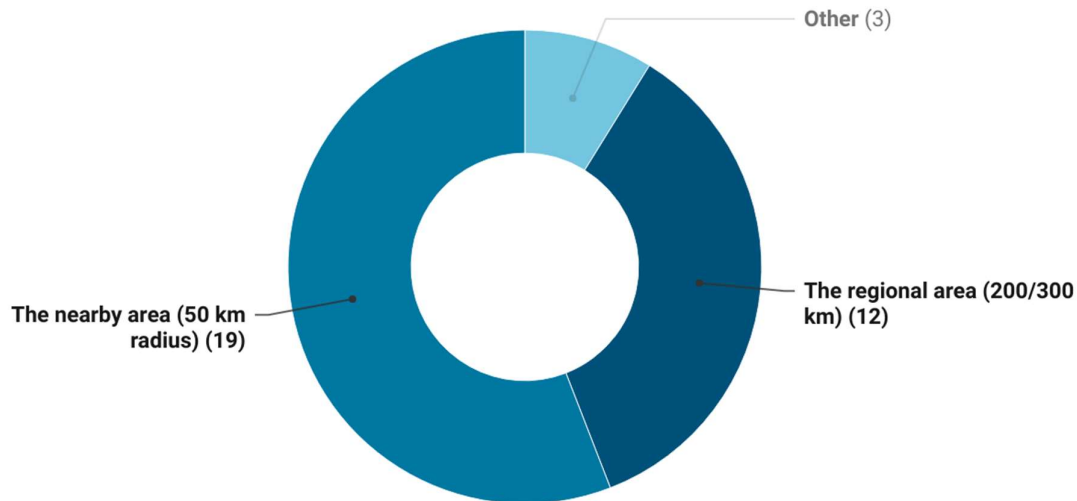
2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Chart: Lara Comis • Source: Comis 2020 • Created with Datawrapper

Figure 4.8 AOAMs Founded by. Online Survey 2018 -Q4.

More than half of the respondents from AOAMs stated that their institution is concerned with heritage pertaining to their immediate environs, within a radius of less than 50 km. This would seem to confirm the high significance of local identity and specific *Genius Loci* vocation (Q. 5, see 2.3.1). A good number of respondents (12) referred to the

illustration and communication of heritage at a regional (or national, considering smaller countries) level as of significance to their operation, while only two respondents specified that they also feature heritage from other countries (fig. 4. 9, Q. 5).



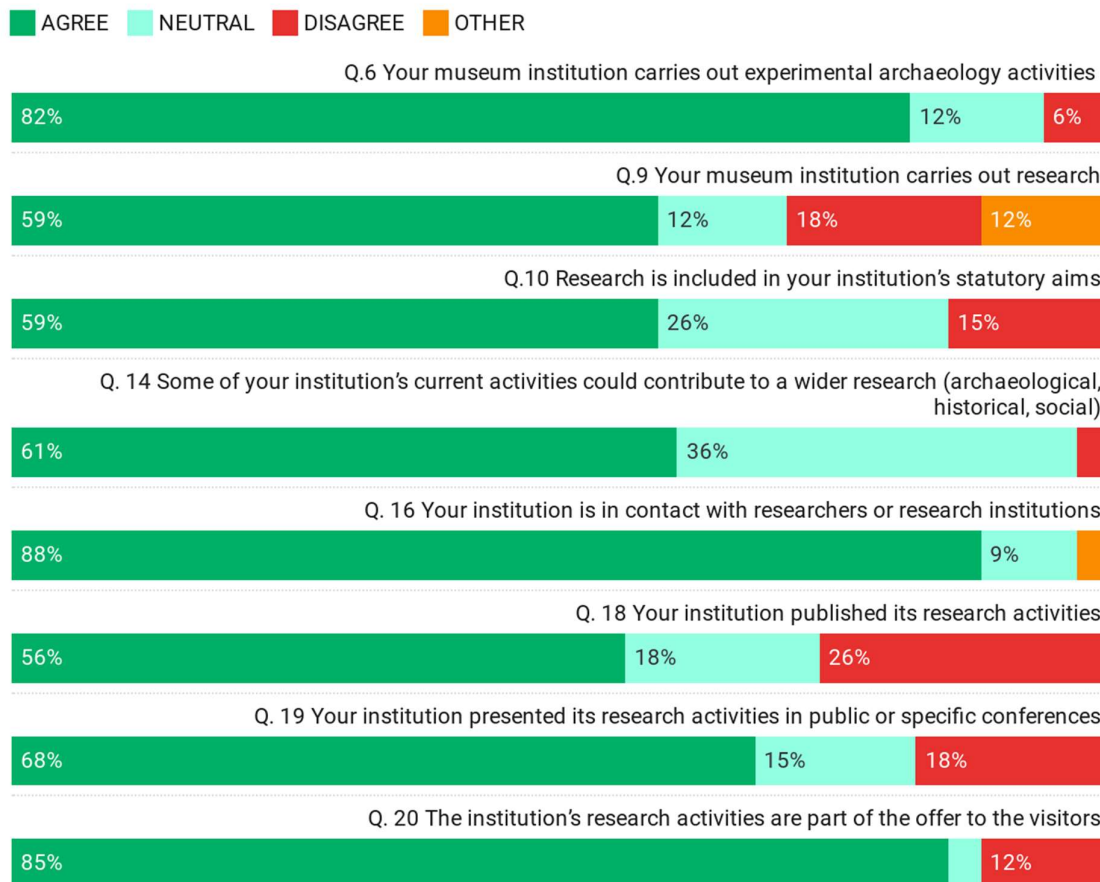
2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Chart: Lara Comis • Source: Comis 2018 • Created with Datawrapper

Figure 4.9 AOAMs - Genius Loci radius – Q5.

Most of the AOAMs respondents agree that they perform “experimental archaeology activities” within their institution. Only two disagreed, while some did not wish to make any decision on this question. Those who felt it useful to add some insights into their choice of response differentiated their experimental archaeology activities from educational activities (see fig. 4. 10, Q. 6). This distinction is particularly interesting within the framework of this study. The specifics given in the open answers state that the educational activities *used* what was previously done with “experimental archaeology”. The important aspect here is not merely a distinction, but a cause-effect relationship: what was achieved through experimental archaeology was, in the view of the respondent, then “used” to create educational activities. It is difficult to determine whether this affirmation is laden with some references to a power relationship that exists between the authors of the experimental archaeology activities and those who performed the educational activities. If

the relationship was based on an ethical approach, there would be potential for best practices. The alternative is questionable labour practices.



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Chart: Lara Comis • Source: Comis 2019 • Created with Datawrapper

Figure 4.10 AOAMs Experimental Archaeology and research. Online survey 2018.

The purpose of the following open-ended question was to enable an assessment of the nature of the experimental archaeology activities performed within the AOAMs institutions. It did so by asking respondents to specify the latest example of their experimental archaeology activity (Q. 7). 28 responses were given in different formats, from a simple hyperlink to a full description of both the activities and the collaboration with external individuals and institutions. The relational data were analysed within a

dedicated qualitative analysis (see paragraph 4.8). The content of the descriptions themselves were considered for the horizontal query on experimental archaeology activities (see below, paragraph 4.7). In any case, a considerable number of different activities was described, including those which can be ascribed only to Archaeological Open-Air Museum facilities, such as the construction of buildings and other large-scale objects (see word frequency query fig. 4. 11, Q. 7).



Figure 4.11 AOAMs – Online Survey 2018. Q7 latest experimental archaeology example – Word frequency query.

In the attempt of mapping the occurrences according to the previously defined activities under which the term “experimental archaeology” was found (see Chapter 2), it seems useful to see them illustrated in relation to them (fig. 4. 12, Q. 7).

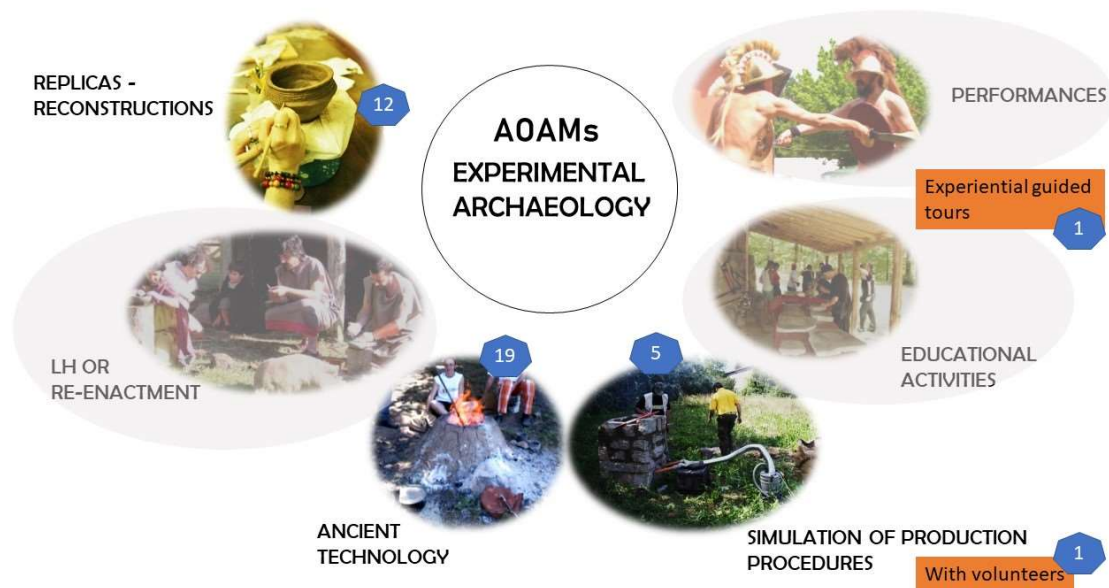


Figure 4.12 AOAMs – Q7 latest experimental archaeology example – categories. Online Survey 2018.

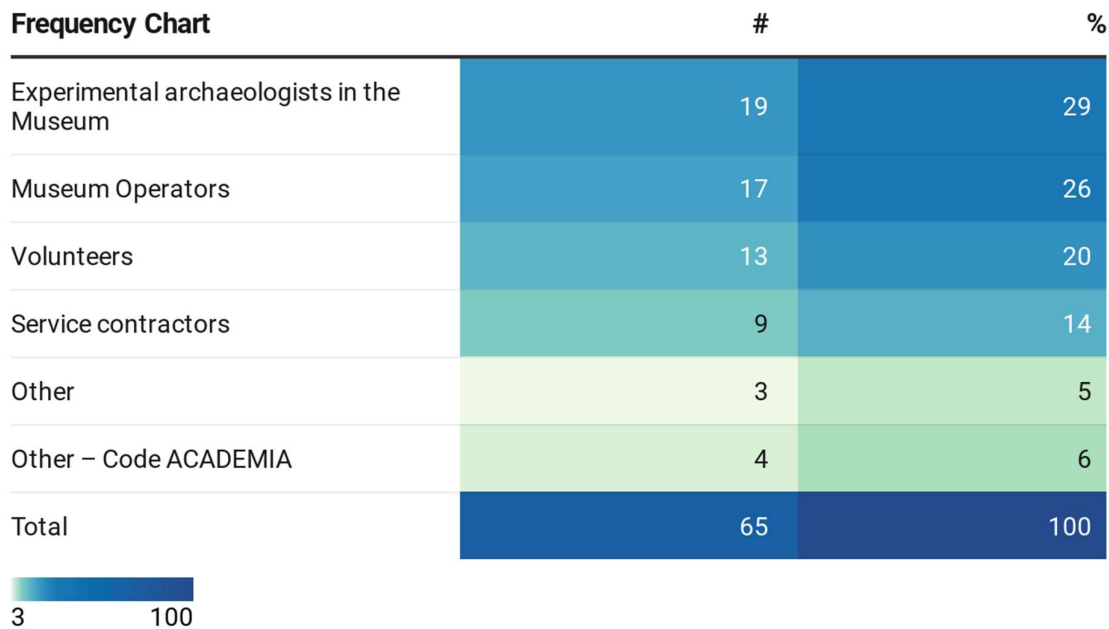
The activities most attended were those related to ancient technology (19 occurrences), followed by replicas and reconstructions (12 cases) and finally some (5) simulations of production procedures. It is interesting that museum respondents did not include living history or re-enactment, educational activities, or performances, specifically, within the experimental archaeology activities. However, they inserted a new category *experiential guided tours* and added a specification for the active participation of volunteers in one of the simulations of production procedures mentioned above (see Chapter 2).

Having ascertained that “experimental archaeology activities” are performed in the Museum Institution, the following question aimed at segmenting the human resources employed for them within the AOAM (Fig. 4. 13, Q. 8). The category most frequently selected for people engaged in performing experimental archaeology activity within the institution was internal staff (26 choices) be they experimental archaeologists or museum operators. The second most frequent category was volunteers (13), and, to a lesser extent, professionals were selected. Four respondents who specified some other choice in the human resources who perform experimental archaeology activities, noted the involvement

of academia, in the form of direct involvement of an institution, or the occasional help of students (both undergraduates and post-graduate, fig. 4. 13).

Chart 7. AOAMs - Online Survey 2018 - Q8: “If you agree, are these [experimental archaeology] activities carried out by: (multiple answers available)”

Exploring the Uses of Experimental Archaeology in European AOAMs, Lara Comis 2020



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Table: Lara Comis • Source: Comis 2019, fig. 3 • Created with Datawrapper

Figure 4.13 Chart 7. AOAMs – Frequency chart Q8.

As stated above, no indication was given in the questionnaire as to terminology interpretation, and the following question (Q. 9, see fig. 4. 10) asked the respondents directly if their institution was carrying out “research”. This topic was broached in this way in order to elicit the most inclusive form of interpretation by the respondents, subject to the cross-categories qualitative analysis (see below).

20 respondents, more than 58% of the total, agreed that research was being carried out in their Museum. Almost 18% (6) disagreed on this statement whereas 4 Museums remained neutral (almost 12%).

Interestingly, the “research” described in the open text associated with the “other” section choice, mentioned primary archaeological excavations and possibilities for performing research on the grounds of the museum. This is a remarkable observation which highlights the difficulties of disentangling the acquisition of primary data from their analysis and subsequent interpretation in the archaeological epistemic process (see Chapter 3).

One respondent was very specific in declaring that experiments are done in the museum, but *“as a part of our visitor experience, rather than from an academic point of view”*. This observation is of particular relevance to this study, especially because no mention to “experimental archaeology” was given in association with “research” anywhere in the questionnaire. It is therefore highly significant that the respondent located the practice of experimental archaeology exactly between AOAMs (visitor’s experience) and Academia (research in the academic point of view), highlighting what, some years ago, I defined as a “fracture” (Comis 2010). This response puts focus exactly upon the irrelevance of the paradigmatic duality. The fourth open response highlighted the difficulties in finding the time to do research in their Museum.

The following question, pertaining to “research as a statutory aim in the museum” was intended to provide data to elucidate this aspect of museum practice (see fig. 4. 10, Q. 10). The responses were congruous with the former question, and no further comment was given. Almost 60% of the respondents indicated that Research is among their statutory aims as museums. This indicates that there is good potential for collaboration with academia.

The most frequent choice among AOAMs respondents for the source used for their own reconstructions was “excavation reports”, followed by “published research” and, lastly, “accepted theories” (fig. 4. 14, Q. 11).

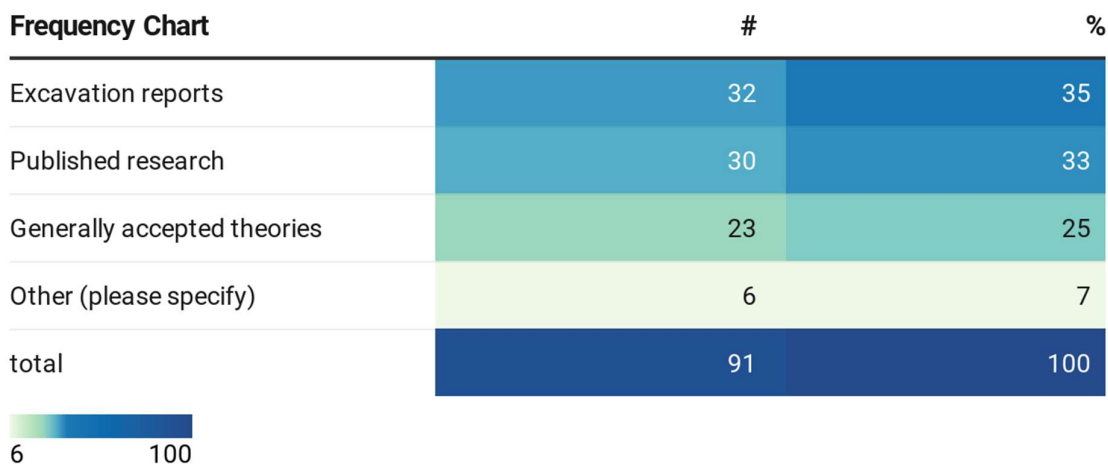
This aspect can be of interest, as “excavation reports” are the most detailed reports that archaeologists share within their own field, and only rarely are they translated from

the highly technical jargon for a wider audience. The specification of reports as the preferred source of information highlights the need for very detailed data for the purpose of reconstruction. Sometimes “excavation reports” are not published at all and remain primarily technical documents⁹. This means, sometimes, that AOAMs’ reconstructions might be illustrating unpublished archaeological data. In some cases, the data comes from highly detailed reports, but in others, it may derive from reports in which the interpretation did not benefit from a deep analysis of the data, which requires funding, time, and effort on behalf of the archaeological scientific community. AOAMs are therefore pioneering centres, in which the archaeological record at the most detailed level is studied with the purpose of creating full-scale reconstructions; in these situations, construction may actually overtake the published research. This is an aspect of AOAM practice that might provoke adverse responses from the academic world, where some reactive voices against those practices seem to be adopting gatekeeping roles.

Qualitative information about the specifications of resources used in planning reconstructions was received from responses to the “other, please specify” section. In this case, a very interesting trend was developed. Three Museum respondents specified that their own processes of trial and error, enacted in response to their own theories or hypotheses were used alongside other sources to build their reconstructions. Others linked their knowledge of traditional crafts and then developing them into their own further acquired knowledge. It is remarkable that this iterative process has been specified even more frequently than the use of written sources and architectural design. This makes it clear that some museum institutions are aware of their own specific research and knowledge acquisition processes; processes that are grounded through their own initiative and based upon their own results. Here the potential is quite clear: a lot can be learned and shared. The node created to enclose this kind of research and process of knowledge and understanding was called “empirical knowledge” (albeit “epistemological awareness” would be perhaps more correct). No direct link to any archaeological source was associated with this obtained knowledge, but it is clear that there is a source of information which is considered to be more useful than external information, possibly relying on local materials, traditions and skills. This entails a secondary source of information, apart from the primary archaeological data.

Chart 8. AOAMs - Online Survey 2018 - Q11: “The reconstructions used in the museum were built using the following resources: (multiple answers available)”

Exploring the Uses of Experimental Archaeology in European AOAMs, Lara Comis 2020



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

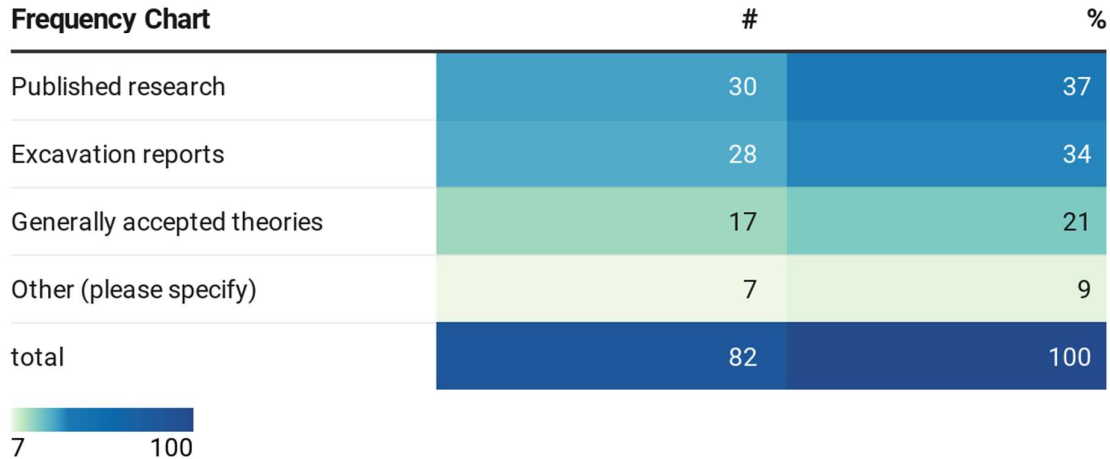
Table: Lara Comis • Source: Comis 2019 • Created with Datawrapper

Figure 4.14 AOAMs – Frequency chart Q11.

The same question, when applied to the replicas in the museum, mobile and organic artefacts, showed a slightly different pattern of response (fig. 4. 15, Q. 12). “Published research” was the first choice for all the respondents, followed then by “excavation reports”. But, most significantly, “general accepted theories” were deemed of less importance for producing replicas than they were for reconstructions. As they already did for reconstructions, Museum respondents were happy to indicate that their own research was a source for their replicas, as well as to highlight the link between production and traditional crafts and written sources, thus highlighting a good array of sources for the actual research they are performing.

Chart 9. AOAMs - Online Survey 2018 - Q12: "The replicas used in the museum were made using: (multiple answers available)"

Exploring the Uses of Experimental Archaeology in European AOAMs, Lara Comis 2020



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

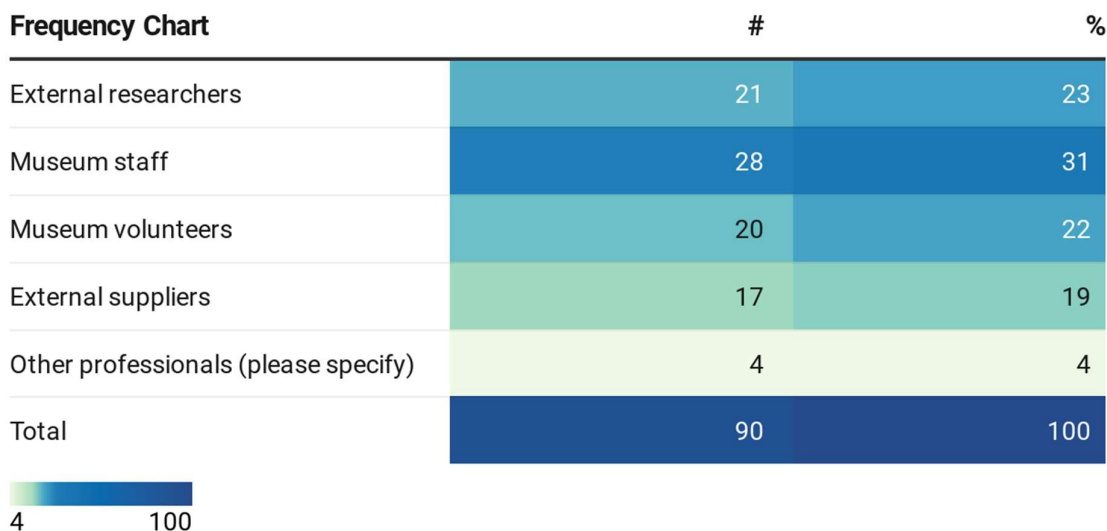
Table: Lara Comis • Source: Comis 2019 • Created with Datawrapper

Figure 4.15 AOAMs – Frequency chart Q12.

In terms of the segmentation of the human resources employed both for reconstructions and the making of replicas in AOAMs, the most frequent choice of response was for the involvement of their own staff (fig. 4. 16, Q. 13). Three other categories were chosen secondarily with approximately the same frequency: external researchers, volunteers, and external suppliers. Some Museum respondents felt it useful to specify that, in the case of external suppliers, specialized craftspeople, archaeo-technicians, engineers, and builders were employed to produce their collection.

Chart 10. AOAMs - Online Survey 2018 - Q13: "Who built the reconstructions/made replicas? (multiple answers available)"

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2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Table: Lara Comis • Source: Comis 2019 • Created with Datawrapper

Figure 4.16 AOAMs – Frequency chart Q13.

The rest of the questions in this section of the survey were designed to aid the evaluation of the potential for research contributions from AOAMs in a wider perspective. The respondents were asked whether some of their activities could be useful to wider research (see fig. 4. 10, Q. 14). 20 AOAMs respondents (60%) affirmed that they could contribute, although a significant number of the sample group (12, representing 37% of the total) did not take any position on the question. Only one respondent disagreed with the proposition that this potential existed.

Those who agreed, gave examples of the activities (Q. 15). The qualitative analysis of this textual data is extremely important to this research, as it gives the perspectives from within AOAMs for the exploration of the threefold potential relationship that could be used to build a model of best practice. The qualitative analysis results will be illustrated in the following paragraphs.

Museum respondents were very specific in the application of the research that could be (and sometimes already is) performed in their museums, and in defining the ways in which it might have a wider resonance within the scientific and scholarly communities. All the text data from the responses was coded and grouped into three main analytical categories (parent codes) which contained further derivations (children codes): place and time-bound research, experimental archaeology, and social and natural sciences. Below is a list of the main areas in which research activities, according to AOAMs respondents, may prove useful (and sometimes already are) to a wider spectrum of research, from the more place-specific to the most general approach:

1. Place and time-bound research (archaeology, history), sometimes entirely dedicated to a specific and unique site. How? E.g., linking maintenance to experimental research (gardens, crops, buildings); having an archaeology field school; long-term and medium-term research.
2. Place and time-bound education, mostly practical, e.g., crafts and ancient technology.
3. Interdisciplinary cyclical research and *“interdisciplinary debate”*.
4. Experimental archaeology to check the validity of theories and to be shared through proper publications.
5. *“Experiences and environments”* to gather data in, whatever the method (experimental, experiential, etc) or the subject.
6. Social research – as a proxy for ancient societies.
7. Social and educational research proper.
8. Earth sciences research.

It is a remarkable list, and the “how” suggested demonstrates a known practice. Here it is important to note that the *“interdisciplinary cyclical research”* was a code applied to a specific entry in the data, based on the concept of “virtuous cycle” as already defined (Comis 2010, see paragraph 2.4.2).

We do not have a strictly academic experimental approach. This means trades and craft workers work hand in hand with historians, archaeologists, and architectural historians.

*Thereby, research and conclusions in one discipline are shared with the other disciplines,
enabling a broader research agenda and sourcing of data.*

(anonymised survey response)

From this perspective, interdisciplinarity is seen as acting as a link for a valuable exchange between “*a strictly academic experimental approach*” and “*craft workers*”, enabling a cyclical dynamic from which the different disciplines’ “*research agendas*” and “*sourcing of data*” can benefit from.

It is, also, quite remarkable to see that some respondents recognised that they could provide “social experience” as a proxy for understanding ancient societies, as this can be considered as the “dark side” of the problem under investigation. More intensive research in this area is needed, in order to clarify the degree to which social awareness is embedded into practice by museums, within their professional and social context.

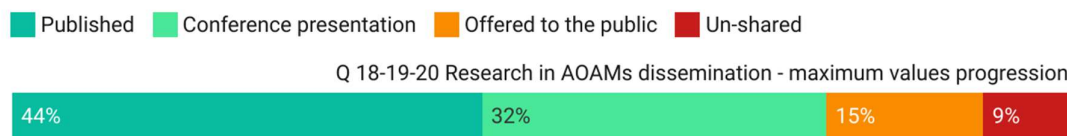
Going deeper in trying to map the underlying relational dynamic (see above 4.2), the respondents were asked if they could confirm their agreement on a sentence which saw their museums in contact with researchers and research institutions (see fig. 4. 10, Q. 16). No one disagreed, while some stayed neutral and most of responses (88%, 30 in total) agreed on the statement. Very scarce also was the input in the open-ended option, in which only one respondent remarked the discontinuity of the relationship between researchers and AOAMs.

Moving on to the assessment of the dissemination of the research performed in AOAMs, the following question, after Paardekooper (2012), was asked about the publishing of that research (see fig. 4. 10, Q. 18). When compared to the question above about being in contact with researchers, the percentage of agreement is considerably lower. 55% only affirmed that their institution’s research reached publication, and a significant percentage (26% of respondents) disagreed. Also of note, is 18% of respondents who preferred to stay neutral on the subject, while, quite strikingly, there was a total lack of responses in the open-ended entries options.

The situation changes slightly when AOAMs respondents were asked about presentation of their research to the public or at specific conferences. Positive responses were at an encouraging 67%, although the numbers of those who disagreed with the statement or remained neutral on the topic were quite significant (see fig. 4. 10, Q 19). In general, in the observed sample, it seems that the work with researchers is performed on the premises of the AOAM but is disseminated more at a conference level, to a lesser extent through publications.

Despite these figures, when asked if their research is part of the offer to the public, a striking 85% agreed, only 11% disagreed and neutrality was quite low (see fig. 4. 10, Q. 20). Perhaps because these were the last three questions of the questionnaire, no elaboration was forthcoming in the open-response option.

Considering the last three questions on a progression scale, we can note a difference between the tallies of research being disseminated either through publications or conferences, and the research that is considered as already part of the offer to the public, with a gap reaching 15% of the activities referred to by the AOAM respondents (fig. 4. 17).



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Chart: Lara Comis • Source: Comis 2019 • Created with Datawrapper

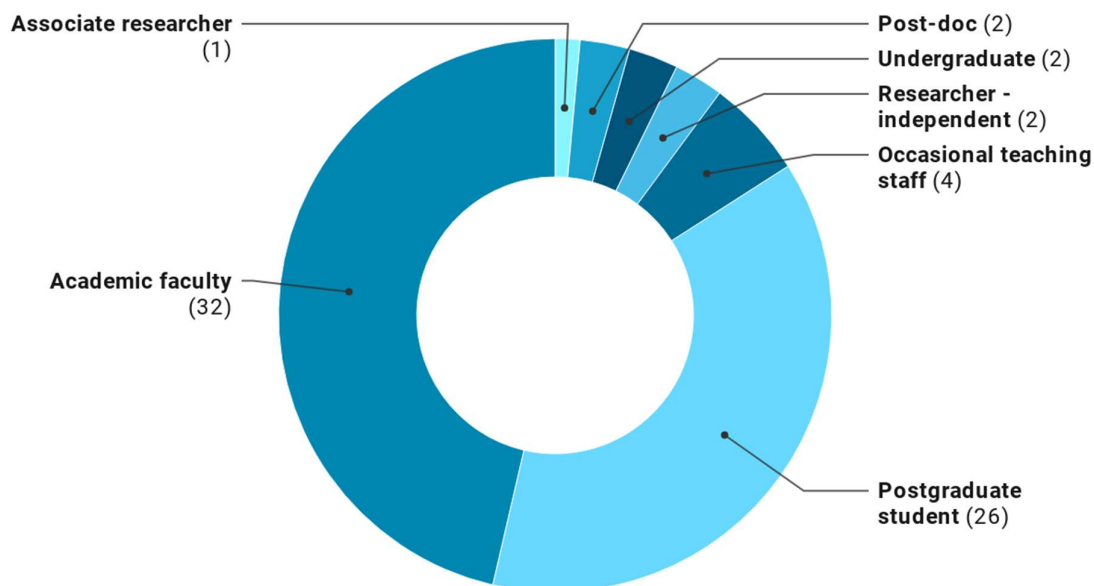
Figure 4.17 AOAMs- Research and dissemination- Online survey 2018. Qs18-19-20.

Research, felt as such by the respondents, is not communicated to the wider scientific or historical or sociological community, but is already part of the offer to the public. This is not a new aspect of the museum context here under scrutiny; other scholars and museum staff have previously highlighted the existence of this gap (see 2.4). This gap delimitates a crucial space for potential activities with citizens and visitors alike, as well as being indicative of remarkable potential for Citizen Science input in AOAMs, and not only limited

to experimental archaeology. In other words, that specific portion of activities indicates clearly that AOAMs are *already* involving the public in research. Also, when viewed from an academic perspective, it opens an entire new field of research. Such research could truly bridge disciplines, and have a transcultural significance at a social level, due to the very characteristics of AOAMs within the social fabric.

4.5 Academic/Research Institutions

Respondents who choose the thread of Academic/Research Institutions (fig. 4. 18, Q. 21) belonged mostly to academic faculty or were postgraduate students (PhDs included). Occasional teaching staff, associate researchers, post-doctoral scholars, and undergraduate students were the other segments attested in the survey responses.



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80

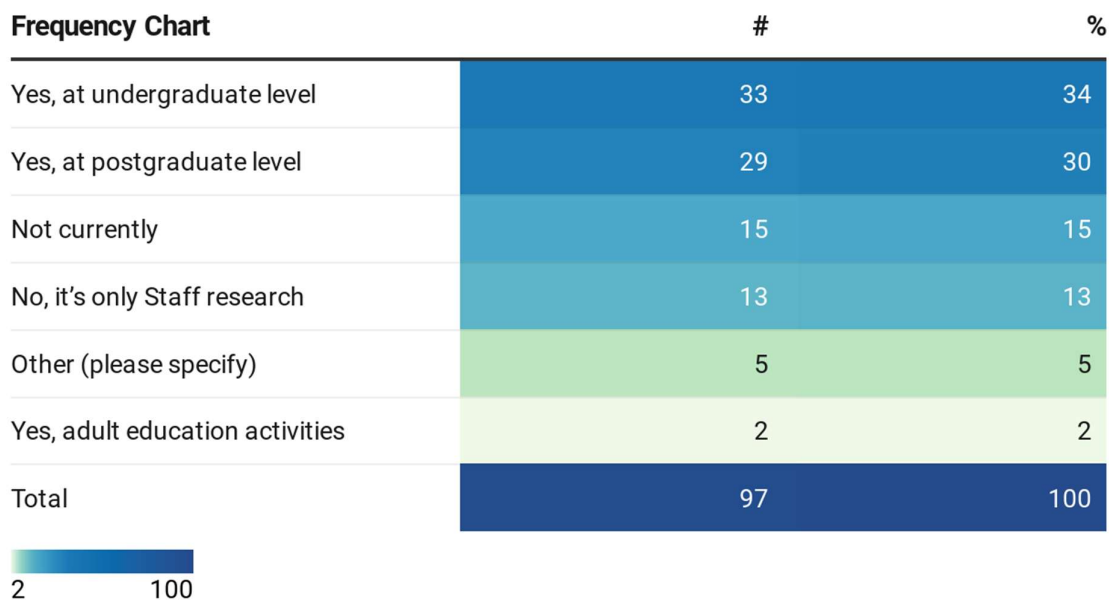
Chart: Lara Comis • Source: Comis 2019, fig. 4 • Created with Datawrapper

Figure 4.18 Academia. Respondents segmentation. Online survey 2018 - Q21.

The teaching of experimental archaeology modules (Fig. 4. 19, Q. 22) is slightly more prevalent in the case of undergraduate students than postgraduate students in the sample under scrutiny (34%, a total of 34 entries). A good number of respondents chose the “not currently” option (15), and the same number of respondents chose to specify that experimental archaeology is used as a research tool for faculty members only. Only two entries indicated that adult learning educational activities are also part of the teaching of experimental archaeology within their institutions.

Chart 13. Academia - Online Survey 2018 - Q22: “Is there a module in experimental archaeology in your academic/research institution? (multiple answers available)”

Exploring the Uses of Experimental Archaeology in European AOAMs, Lara Comis 2020

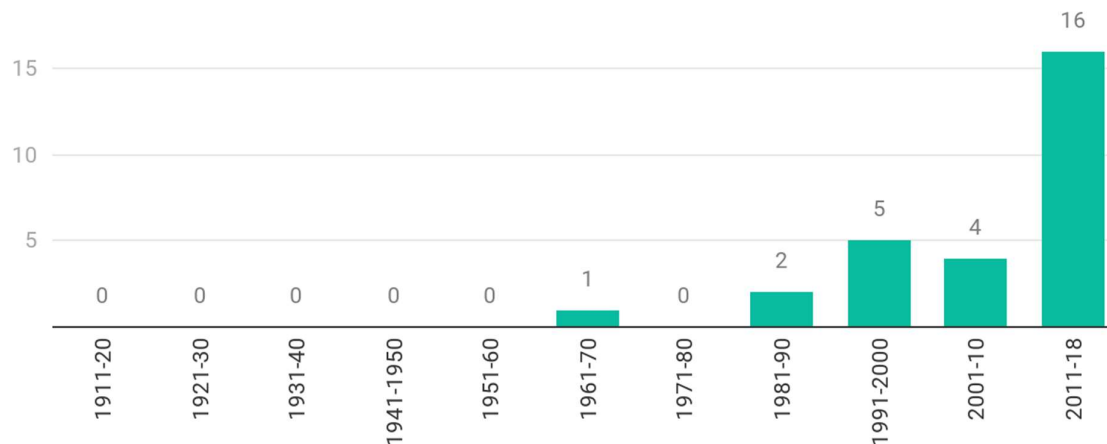


2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Table: Lara Comis • Source: Comis 2019 • Created with Datawrapper

Figure 4.19 Academia. Frequency chart Q22.

For those who provided data about its inception at their institution (28 entries), few indicated that experimental archaeology, as a taught subject, was offered at any relatively early date, starting with one occurrence in the 1960s and then increasing up from the 1980s. Most of the respondents indicated dates in the last decade, as the graph below illustrates, showing a trend which is quite important in the context of this study (fig. 4. 20, Q. 23).

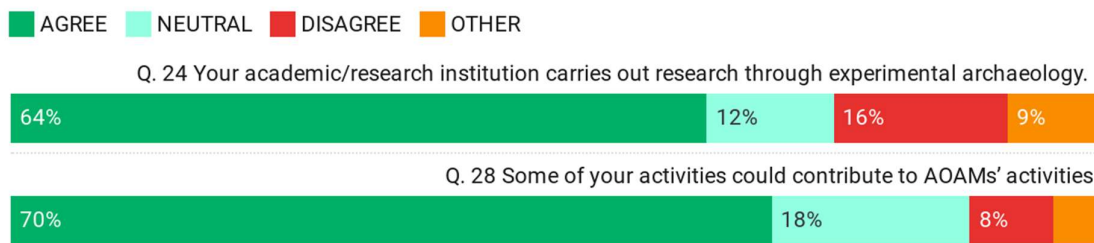


2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Chart: Lara Comis • Source: Comis 2020 • Created with Datawrapper

Figure 4.20 Academia. Experimental Archaeology teaching starting date distribution. Online survey 2018 Q23.

As for the internal use of experimental archaeology as a research tool within the research institution itself (fig. 4. 21, Q. 24), 44% of the respondents indicated that this was the case. A good percentage (15%) disagreed with this, while more than 10% remained neutral on the topic.



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Chart: Lara Comis • Source: Comis 2019 • Created with Datawrapper

Figure 4.21 Academia. Experimental Archaeology and AOAMs. Online survey 2018.

A deeper qualitative analysis was performed on textual data obtained from respondents who felt the need to expand or clarify their answer in the open-ended option. This was extended to include the following open-ended question responses (Q. 24, Q. 25). The purpose of this analysis was to identify, from a conceptual perspective, the spectrum of the analytical category “research” within experimental archaeology as actually performed in the academia sample (Comis 2019c). There were just six entries in this case, and the results of the analysis can be summarized by the following codes:

1. Experimental archaeology research is performed by one individual only within the institution and few students are involved.
2. Experimental archaeology is considered part of Public Archaeology only.
3. Experimental Archaeology uses computer simulations of archaeological processes.
4. Experiential archaeology is performed within the institution.

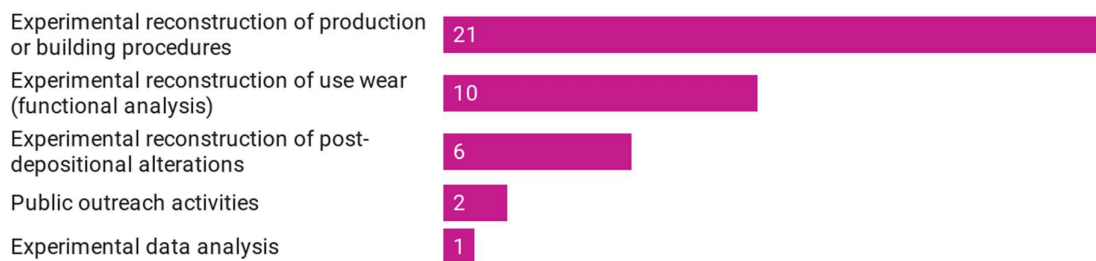
The specifications given in the responses were felt needed to clarify both the extent and nature of some activities which, according to the respondents, were not entirely falling in the “experimental archaeology research” category.

In the following question, the respondents were asked to provide examples of their research activity through experimental archaeology, so as to provide an insight on what experimental archaeology as a research tool is actually perceived to be within the institutions (fig. 4. 22, Q. 25).



Figure 4.22 Academia – Q25 latest experimental archaeology example – Word frequency query. Online Survey 2018.

The activities described in the text can be summarized under five major content categories, listed by order of preference, in the chart below (fig. 4.23, Q. 25). For a clarification of the distribution of these categories within the general scheme of experimental archaeology activities, as suggested in the third chapter, see their distribution in figure 4. 24 below.



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80. Qualitative analysis of text data from respondents.

Chart: Lara Comis • Source: Comis 2018-20 • Created with Datawrapper

Figure 4.23 Academia. Experimental archaeology activities. Online survey 2018. Q25.

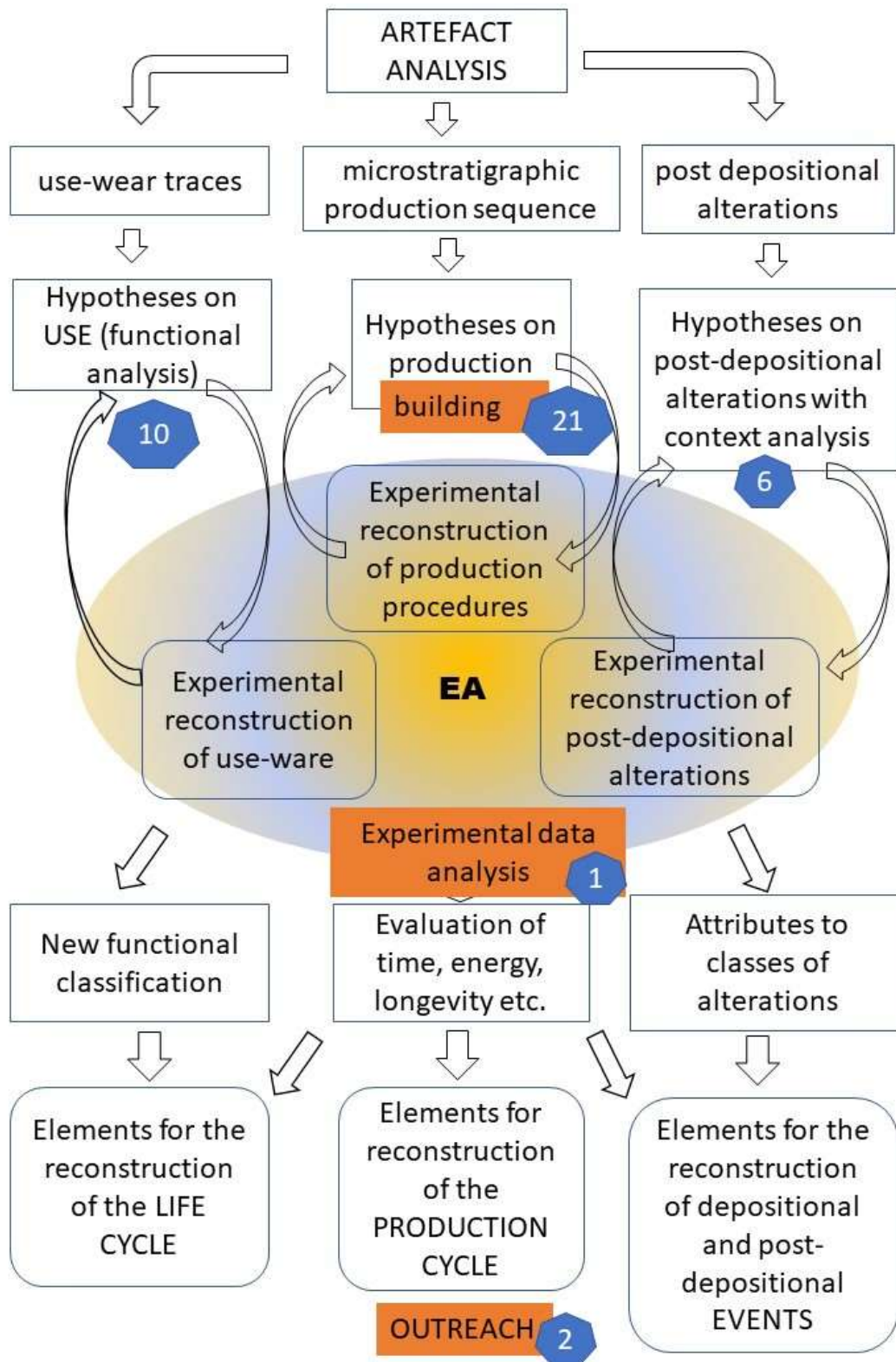


Figure 4.24 Academia. Experimental archaeology activities. Schematic distribution. Online survey 2018. Q25.

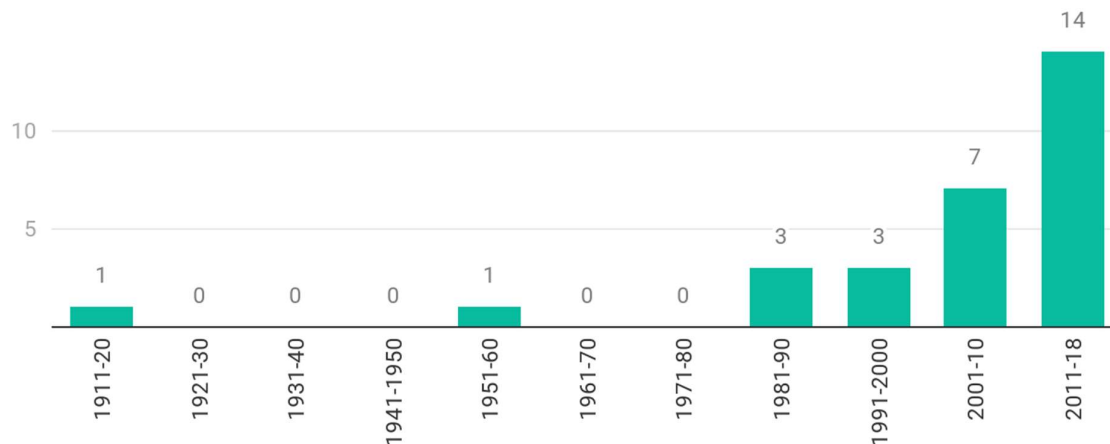
It is worth remarking that one of the respondents specified “*experimental data analysis*” as being part of experimental research. Despite being only one among the respondents (1 on 69), this specification indicates that some researchers perceive the importance of data analysis in the epistemological process of experimental archaeology. In other words, in research, performing an experiment and obtaining results is not sufficient to complete the experimental work.

The other entries specified by whom these research activities were performed, again, listing by order of preference:

1. Postgraduate students (MA – MSc and PhD students); in their thesis (8 occurrences).
2. PhD graduates (1 occurrence).

Although some publications were referenced in this section (one book and a few articles), some respondents felt it necessary to specify that their research is unpublished, as is probably the case for many postgraduate theses.

When compared to the teaching of experimental archaeology as a part of the curriculum, the internal research through experimental archaeology in research institutions (fig. 4. 25, Q. 26) seem to be more spread out in time. Some respondents specified “from the start”, as if experimental archaeology, intended only as internal research methodology, was always used within their institutions. Even so, it is striking that the use of experimental archaeology for internal research shows a steady growth in time over the last two decades, a somewhat longer timeline than that for differently from the teaching of it (see above fig. 4. 20, Q. 23). The total of entries for this chart were 29.



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80. Total entries for Q26: 29.

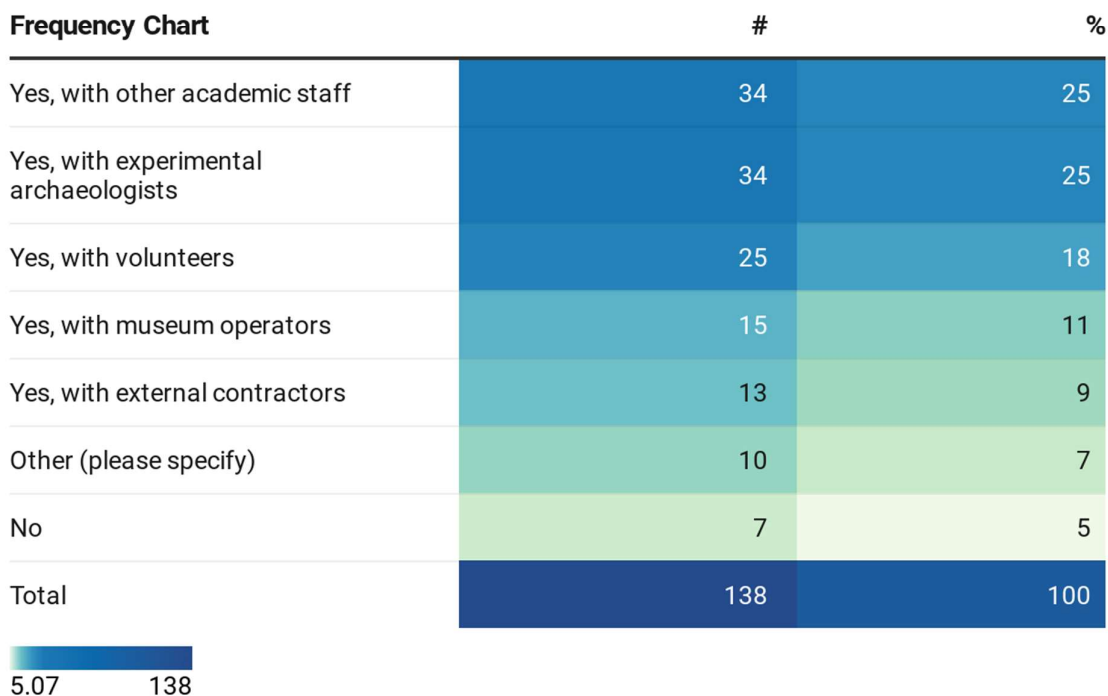
Chart: Lara Comis • Source: Comis 2020 • Created with Datawrapper

Figure 4.25 Academia. Experimental Archaeology as internal research, date distribution. Online survey 2018 Q26.

Going further in trying to assess and evaluate the human resources segmentation of experimental archaeology research activities within academia, the following question was aimed at identifying the spectrum of typologies of the different subjects involved (fig. 4. 26, Q. 27). In the responses to this question, “other academic staff” and “experimental archaeologists” were the most frequently identified as performing experimental research. It is notable that the contribution of volunteers was significant, followed by museum operators. External human resources (defined generically in the text as “external contractors”, as a means to defining them by virtue of their being paid for their contribution), were also indicated as contributors. Four of those who chose to specify the “other” choice indicated that external craftspeople were involved in the experimental archaeology activity within the institution. Other indicated the presence of students (probably not considered as volunteers in this case) or specified that the extent of the experimental archaeological activity was very limited and linked to individual projects. As previously seen with the AOAMs’ respondents, the information contained in the responses to this question formed part of the relational data, qualitatively analysed (see paragraph 4.8).

Chart 18. Academia - Online Survey 2018 - Q27: "If you agree, are these research activities carried out with the help of external professionals? (multiple answers available)"

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2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Table: Lara Comis • Source: Comis 2019 • Created with Datawrapper

Figure 4.26 Academia. Frequency chart Q27.

The following question was eliciting the level of agreement to the statement "Some of your activities could contribute to AOAMs' activities" (see above fig. 4. 21, Q. 28). The majority of the responses to this question were positive (almost 70%), while the numbers of those who responded negatively were low. More than 18% of respondents chose to remain neutral on the subject. In the few elaborations given in the "other" open ended entries, another set of external geographical or quantitative limitations were given.

The following question, which elicited some critical observations from some respondents because of its format, was addressing the potential for the collaboration

between AOAMs and Academic Institutions. Responses were again based on a simple agreement scale for each of four categories of rationales identified for justifying this connection (fig. 4. 27, Q. 29). Most of the respondents agreed that the priority in collaborating with an AOAM would be to promote research, followed by the education of the public and the promotion of archaeology. The least preferred entry was to perform public outreach activities.

Item	Average
To promote research	67
To educate the public	64
To promote archaeology	63
To perform public outreach activities	59

2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

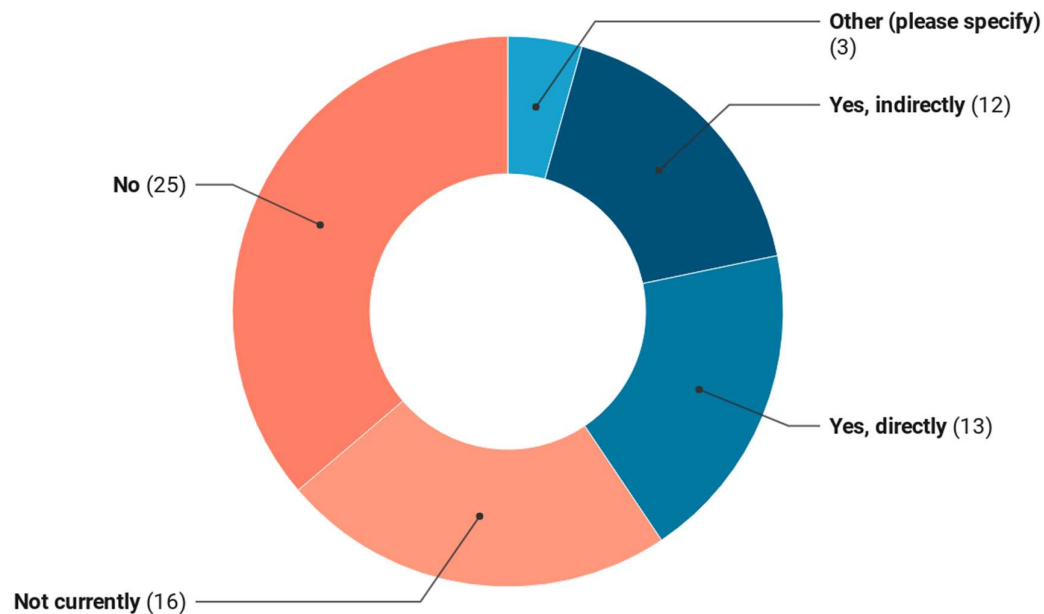
Table: Lara Comis • Source: Comis 2019 • Created with Datawrapper

Figure 4.27 Academia. Average agreement percentage Q29.

The open-ended comments given by the respondents were particularly interesting but would need to be analysed later. Here, it suffices to say that the respondents' comment focus on the main issue of how public outreach and research are overlapping within the field of experimental archaeology.

The last question for the Academic respondents was designed to probe for existing or potential connections with AOAMs (see below fig. 4. 28, Q. 30). More than half of the respondents indicated that they had no contact with any AOAMs, although a little less than a half of the respondents are considering the option. Only 12 Academics responded that they were in direct contact with AOAMs (a low figure, considering that the total number of respondents in this category were 69). Those that indicated indirect contact numbered 13. The three respondents who expanded upon their selection of "other" positions in this respect demonstrated only a very cloudy understanding of what the definition of an AOAM is, thus highlighting a space for further improvement in the communication and promotion

of these institutional realities to academic institutions. It would be useful to understand to what level AOAMs are included in academic teaching of heritage communication and management.



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Chart: Lara Comis • Source: Comis 2019 • Created with Datawrapper

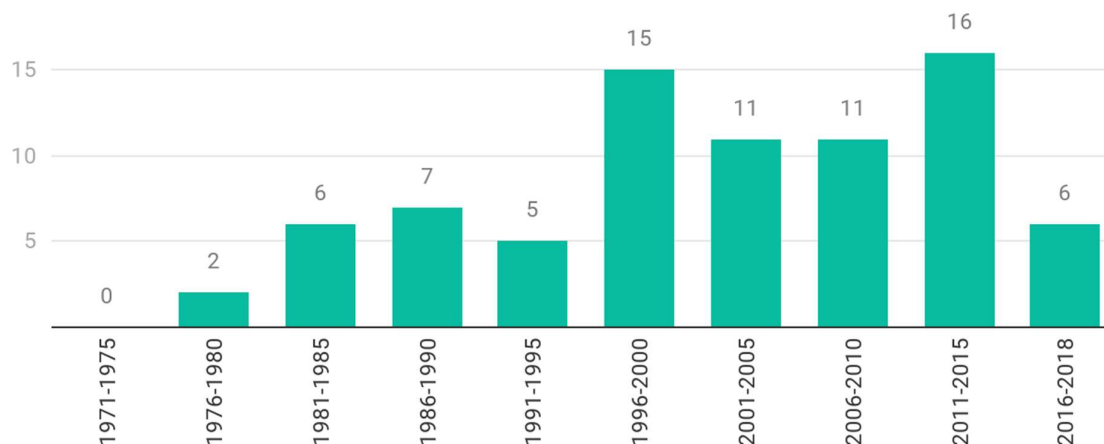
Figure 4.28 Academia. “Are you in contact with any AOAM?”. Online survey 2018 Q30.

4.6 Independent Activities

This category returned the largest number of responses (80 total). Considering that this is the first time that satellite activities, as represented by individuals or associations, have been considered in a systematic study of experimental archaeology and AOAMs on the same level as the institutions which, together with them, constitute the relational dynamic, this is quite a significant number. As previously observed, although the figure

could be considered almost sufficient for statistical analysis, the scope of the online survey was that of gathering under the same category all the realities which interact with museums and academia for segmentation purposes and to acknowledge their role in the current dynamic (Comis 2019c).

The first question for the Independent Activity category respondents was designed to assess the longevity of their activity by asking them to state the starting date (Q. 31). Most of the respondents started their activity within the last 20 years, although some started at a considerable earlier date, with up to 35-40 years of experience behind them (fig. 4. 29, Q. 31).



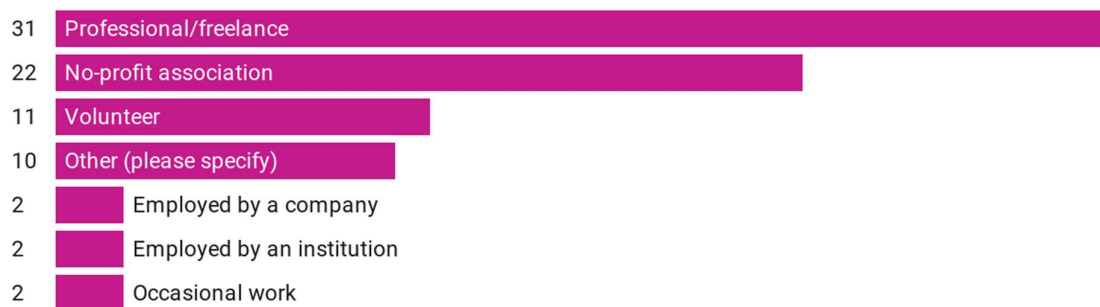
2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80. Total entries for Q26: 29.

Chart: Lara Comis • Source: Comis 2020 • Created with Datawrapper

Figure 4.29 Independent Activities Starting date of activity distribution. Online Survey 2018 Q31.

The following question aimed at providing a segmentation for the respondents in Independent Activities' category. This question was designed to gather data to include all the realities which are in contact with museums and research institutions but do not belong to either of those categories. The most frequent choice in this segmentation, with 31 occurrences, is that of freelance professional individual, with non-profit associations being the second ranked. Following from those, the next most numerous segment, with 11 responses, represents one of the most important assets within AOAMs: volunteers. As has

already been noted above in the Academia respondents' paragraph, volunteers are also present in research institutions. Six respondents declared themselves to be employed, either by institutions (2 entries) or by companies (2 entries) or doing occasional work experiences (2 entries) (fig. 4. 30, Q. 32, see also Comis 2019c fig. 5). In the open-ended "other" option, 10 respondents felt it useful to elaborate upon their work history, their funding, and their specialization. It is of interest to see that two of them specifically referred to being crafters, one belonging to a re-enactment group, the other stating that their activities are self-funded through other employment and finally six of them self-defined themselves as independent researchers. Interestingly, among those who added details about their work career, some started as museum workers before becoming researchers, others took the opposite trajectory by starting in university and then becoming museum workers, as well as independent researchers. Both trajectories are attested. This inference is interesting because it highlights the diversity of approaches within the Independent Activities embedded within the social dynamic here under scrutiny. Most importantly, it shows how a superficial linearity in the usual assumption that "employment follows education" is not entirely true. Also, the self-identification as an independent researcher is indicative of the existence of a category of researchers who are not part of any institutions in this dynamic, and yet are part of the dynamic itself.



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

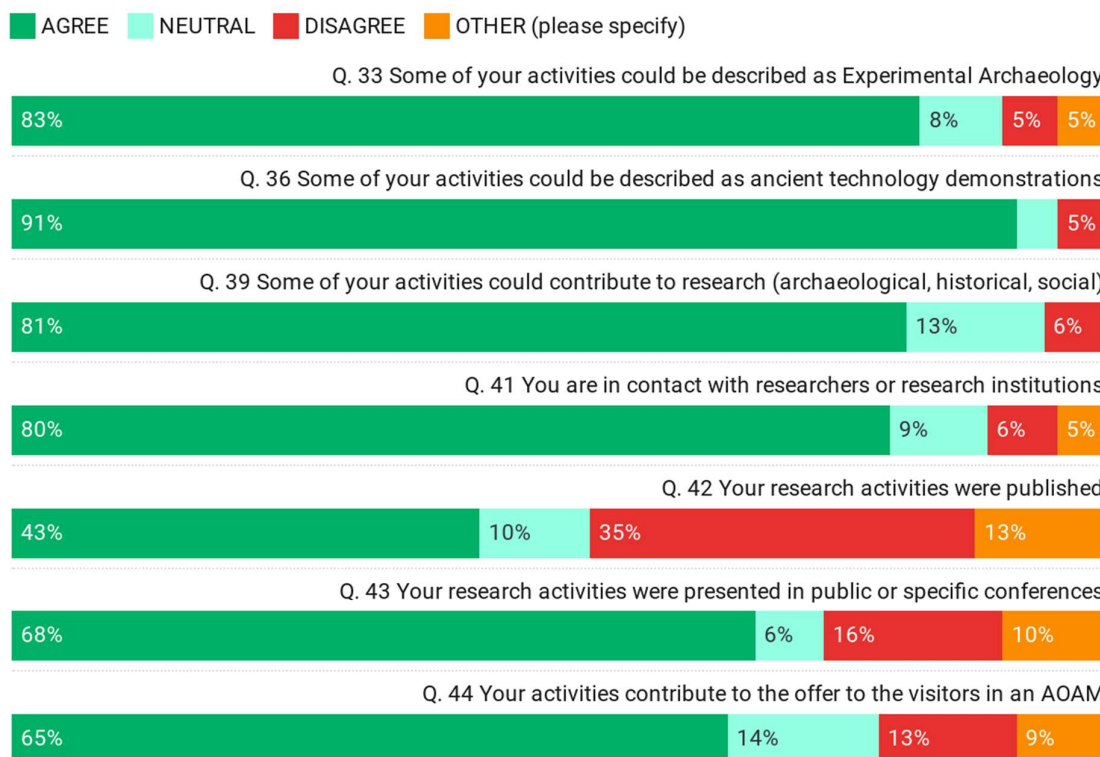
Chart: Lara Comis • Source: Comis 2019 fig. 5 • Created with Datawrapper

Figure 4.30 Independent Activities. "How would you define your activity?". Online survey 2018 - Q32.

In the case of experimental archaeology, 82% of the Independent Activities respondents agreed that this activity is a part of their remit (see fig. 4. 31, Q. 33). Some remained neutral (7%), and others disagreed with this statement (5%). The open-ended responses, as previously observed, were rather interesting in that they contained a critique of the definition of experimental archaeology (Comis 2019c), despite the fact that no definition was given within the online survey. The fact that these unsolicited critiques were made reflects the scarcity of a common theoretical ground when it comes to experimental archaeology, and a rather contentious approach from those who practice it on the field. The other entries were equally significant, expressing the following points:

- Activities must be exciting for the public; therefore, they cannot be tedious experiments.
- They potentially could be experimental archaeology, but since there are difficulties in defining a methodology, finding proper measurement protocols and finally in publishing, they cannot be.
- Since no measurable parameters are part of the activities, they cannot be experimental.

It is remarkable that these observations, paraphrased from the original entries, actually touch some of the weak spots already highlighted in the discussion about experimental archaeology as a research tool (see Chapter 2 and 3), namely: definition, methodology, dichotomy between quantitative/qualitative, measurements, purpose (entertainment vs research).



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Chart: Lara Comis • Source: Comis 2019 • Created with Datawrapper

Figure 4.31 Independent activities Experimental archaeology, research, and AOAMs. Online survey 2018.

As with the two other categories of respondents, i.e., Museums and Academics, those identifying with Independent Activity representatives, were asked to provide their latest example regarding experimental archaeology. The word frequency query (fig. 4. 33, Q. 34) shows a predominance for gerunds, among which “using” was the most common. The qualitative cross-category analysis of all the examples given will be illustrated below in paragraph 4.7.



Figure 4.32 Independent Activities. Latest experimental archaeology example Word Frequency Query. Online Survey 2018.

In trying to assess what kinds of sources Independent Activities respondents use when doing experimental archaeology activities, the following question was purposely left quite open, by providing very few choices (fig. 4. 33, Q. 35). It was hoped that respondents would add personal points of view and make some specific reference to their own experience within responses to this question. This strategy was successful in eliciting responses from almost half of the respondents in the open-ended section and specifying their choices on the utilized sources for their experimental archaeology activities.



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Chart: Lara Comis • Source: Comis 2020 • Created with Datawrapper

Figure 4.33 Independent Activities. “On what sources do you base your activities?”. Online survey 2018. Q35.

A qualitative analysis of this section was performed in order to trace the dynamic aspect of experimental archaeology sources which are not communicated in standardized academic or public communications.

The results of the qualitative analysis show three major clusters of sources as identified by the Independent Activity respondents. These results were summarised and illustrated with a linear mind map highlighting the logic used in the entries. The first cluster starts with published research as a significant source of information and then proceeds to include excavation reports, experiments, and gives indications regarding what kind of theories are challenged or what scientific protocol is thus followed (namely analysis and reproduction). For those who specified excavation reports as a secondary source after published research, a few other source types were also added, such as historical sources, artefact analysis and consulting craftspeople or reenactors. For those who indicated experiments as a secondary source after published research, craft experts and “*previously unresearched parameters*” were also added to their explanations.

The second cluster is represented by those who use all three the options given in the question but add to them also experiments (in one case linked also to skills training), artistic ventures and own research. In this cluster, we find also – as above – the challenging of generally accepted theories.

The third cluster of responses deals mainly with historical sources, original artefacts (in one case, specifically “*unpublished*” materials) training with experimental archaeologists or craftspeople, and own research. Some other respondents (just two

occurrences) mentioned an explicit link with hard sciences or consultancy with scientists. Only two respondents specified that they make use of experiential sources, in one case expressed with the coupled words “*experiment/experience*”.

As previously stated in paragraph 4.2.1, the following question directly addressed the existence of “ancient technology demonstrations” as a practice among the those performed by the respondents from the Independent Activity category. This was the only point in the questionnaire where an explicit differentiation was placed to clarify the difference existing between outreach and research within the framework of “experimental archaeology activities” (see Comis 2019c). In response to the statement “some of your activities could be described as ancient technology demonstrations”, the level of agreement was the highest of the entire survey (see fig. 4. 31, Q. 36). 91% of the Independent Activities’ respondents agreed with this statement. 5% Disagreed and only 4% preferred to remain neutral. Strangely, no comments, clarifications or doubts were expressed in response to this specific question.

A qualitative analysis was performed to assess the underlying logic beneath the way in which independent responses specified examples of ancient technology demonstrations. This analysis returned a very complex, yet structured and rather clear scheme, which illustrates a wide array of different activities (fig. 4. 34, Q. 37).

When compared with the cross-category scheme of experimental archaeology (see below 4.7), the logical structure underneath ancient technology demonstrations appeared to be much clearer and more linear. In fact, although it must be clearly stated that the mind map deals only with the content of the responses, and as such does not represent the totality of the potential within ancient technology, it does provide a structured view of the subject “ancient technology” from a conceptual point of view. This structured view was shared during the Experimental Archaeology Conference 11 in Trento, Italy (EAC11), and was further developed for the EXARC “Documentation Strategies in AOAMs” conference in 2020, from within the perspectives of both Citizen Science and integrated epistemology. This approach, which could also lead to interesting outputs in Archaeology in a wider perspective, will be illustrated in Chapter 6.

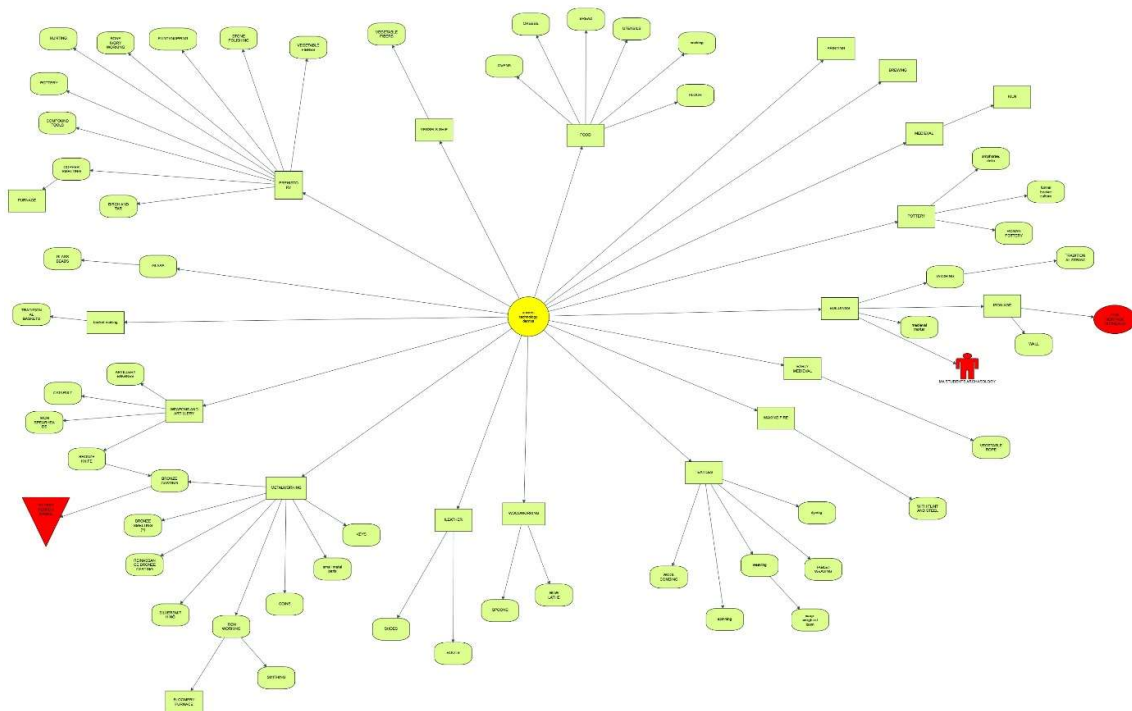
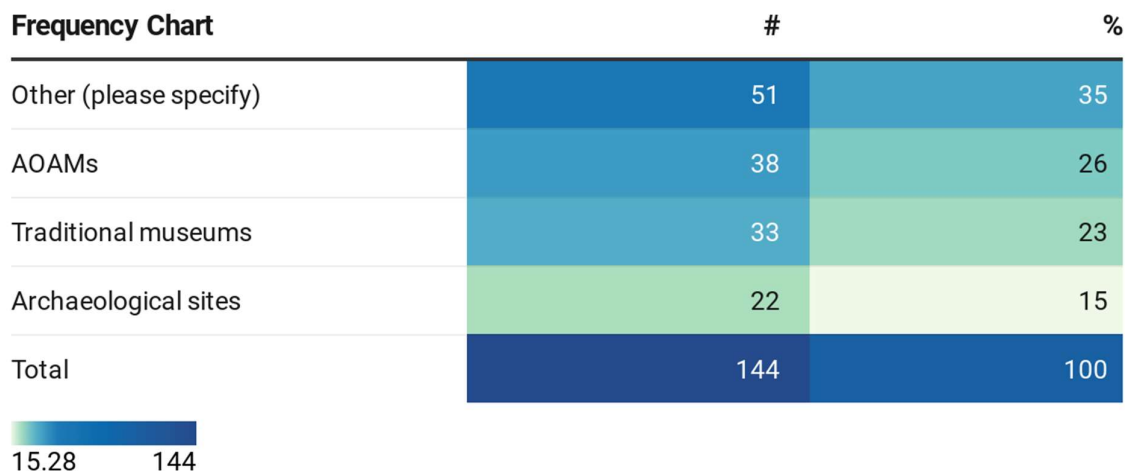


Figure 4.34 Independent Activities. Mind map on “ancient technology demonstration latest example”. Q 37. Online survey 2018. Comis 2019.

In question number 38, the Independent Activities respondents were asked to state where they perform their activities (fig. 4. 35, Q. 38). The same strategy used for question 35 was again applied, and the textual data delivered further information specific to the respondent which were hoped for. In terms of a specific venue for carrying out of activities, the preferred choice was AOAMs (26%), followed by traditional indoor museums (23%), and finally archaeological sites (15%). In the details added by the responses in the remnant 35%, as was expected, schools turned out to be one of the most selected locations. This aspect is crucial for Independent Activities: their presence in educational institutions is relevant to the overall theme of experimental archaeology and AOAMs, as they act as a “bridge” between schools and institutions. In addition, the specification of private grounds, laboratories and workshops, or research focused areas which are not directly linked with the public as chosen venues is also of note. Another very important aspect that emerged from the details supplied regarding locations for Independent Activities, is the mention of re-enactment events, such as historical markets or gatherings. Such events are also held in

AOAMs¹⁰. Overall, Independent Activities form an active and varied component of the dynamic under scrutiny. The locations mentioned in the comments, together with the other locations which were mentioned in the responses from the other two categories (AOAMs and Academia), were subject to a network analysis, which is illustrated below (see paragraph 4.8).



2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Table: Lara Comis • Source: Comis 2019 • Created with Datawrapper

Figure 4.35 Independent Activities. “Where do you carry out your activities? Multiple answers available”. Frequency chart. Q 38 Online survey 2018.

The last section of the questionnaire dealt with the research aspect of experimental activities and was designed to gather information about the ways in which those conducting Independent Activities view and respond to research in general. The purpose of the first question within this section (see fig. 4. 31, Q. 39,) was to determine the scale of agreement with the statement “Some of your activities could contribute to research (archaeological, historical, social)”. A high percentage of respondents agreed (81%), quite few disagreed (6%) but more than 10% preferred not to take a position on this subject. None of the respondents felt it necessary to make further comment. For those who agreed, the questionnaire asked them to provide some examples of this contribution (Q. 40). This

section was by far among the most interesting within the framework of this study, as the respondents appeared very transparent, honest, and eager to give their view on the topic.

The qualitative coding of these entries has evidenced a major theme, that of communication. Most of the respondents simply stated that it is through publication of their activities that valuable contributions to research can be made. Among the forms of dissemination mentioned in the responses, conferences, reports, books, websites, peer reviewed articles were all mentioned. In other responses, the role of independent activities in research was described in terms of communicating, discussing, debating, comparing, sharing, and educating. In one respondent's words: *"stimulating research"*.

On a deeper level, their position was exemplified by the recurrence of another crucial theme in experimental archaeology, that of the challenging of accepted theories (see 2.3.5). Expressions such as *"testing of theories"*, *"wrong assumptions"*, *"verify methods and materials"*, *"offering alternative perspectives"*, *"remove misunderstandings"* were all present and articulated, in some instances with proper research questions applied to specific archaeological or historical contexts.

Another relevant aspect of the theme of contributing to research, attested in many entries, is the expression of a purely epistemological perspective. This is particularly interesting when considered in association with experimental archaeology's contribution to research, especially as seen from the perspective of the Independent Activities' respondents. In this specific facet, the contribution to research is not shaped challenging pre-existing theories, which would be utilizing a conflicting view, as it is in the one above. What is apparent in the epistemological and gnoseological specifications emerging in this code, apart from the different epistemologies evidenced, is the emphasis given to continuity of research:

Extend the corpus of knowledge, provide information for next researchers.

"Furthering research" is the highlighted factor, together with some specifications of method. Comparison with the archaeological material is also mentioned a few times, both at the beginning of the research process, and at the end. Two respondents replied in the open comment section by stating that their work contributed to research by creating new

classifications or functional identification of artefacts, and one specified that every activity they undertake is focused on one particular research question. In addition to a couple of mentions of the educational aspect in the contribution to research, one respondent gave a very articulated comment, describing their experience of the contrast between AOAMs and Academic Institutions which is worth reporting here. In their view, AOAMs cannot replicate the actual subject under investigation, because the buildings on their sites are not lived in, and thus cannot represent the living past archaeologists strive to understand. On the other hand, universities cannot provide long term commitment with experiments and skill training for a variety of reasons, in particular finance and management mainly. The respondent goes on to explain the solution they have developed in order to manage this “mismatch”: they founded their own private company. Interestingly, the respondent states that working with a smaller “audience” has enabled them to *“improve the quality and lasting societal impact”* of their activities. A precious point of view, even if a singular case.

The objective of the following question was to provide an insight into whether or not the Independent Activities respondents were in contact with researchers or research Institutions (see fig. 4. 31 above, Q. 41). Almost 80% agreed that they were, while 8% disagreed. 6% remained neutral, and among those who offered some further insights in the open response section, some expressed their frustration about the process (*“I have pretty much given up”*, see Comis 2019c). One respondent who chose the neutral option, elaborated their response by saying that it was so because experimental archaeologists were interested, but *“classics and roman archaeologists are not - they don't 'get' experimental archaeology”*. This observation is quite interesting, as it might point out a discrepancy between how experimental archaeology is perceived in fields which were influenced by new archaeology, and thus the “scientific” aspect of archaeology, and other “archaeologies” which came in contact with it at a later date. This observation seems to indicate the importance, and consequence of, the demarcation issue on one hand and of the old dichotomy between science and humanities on the other.

Even though previously a significant group of respondents had already identified publication as a major means of contributing to research, when they were asked to assess their level of agreement with the sentence “your research activities were published”, only

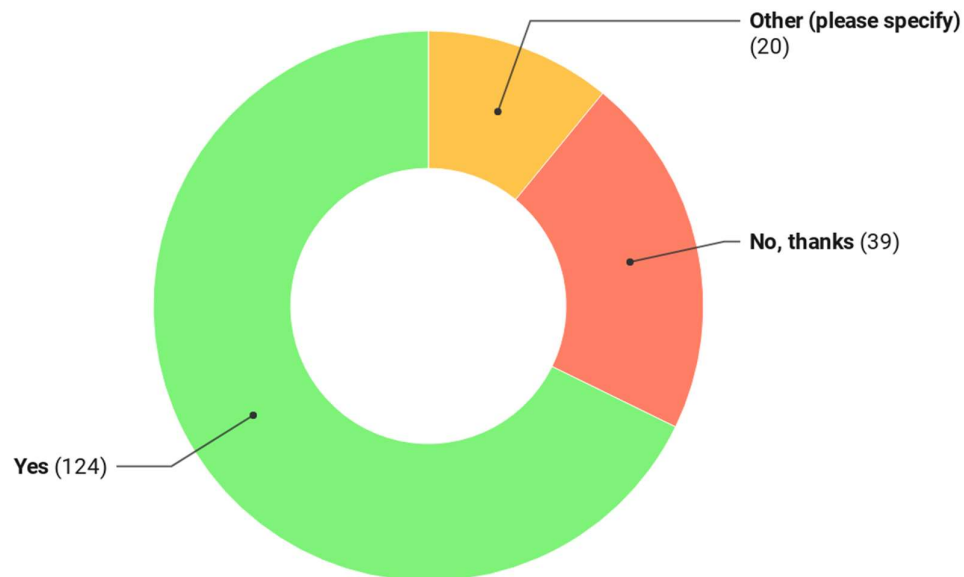
43% of them responded positively (see fig. 4. 31 above, Q. 42). This question returned the highest rate of disagreement for this category: 35% of respondents firmly disagreed with the statement, and 10% remained neutral. Of those who felt the need to specify (13%), most stated that they did not do so in an academic format, others expressed again their frustration, as previously noted (Comis 2019c: *"not in my name"*), and one respondent clarified that their knowledge is shared face to face or through social media only. These rather depressing figures are, encouragingly, not duplicated when the respondents were asked whether or not their activities were presented in public or dedicated conferences (see fig. 4. 31 above, Q. 43). 68% responded in the affirmative, although the percentage of negative responses was still significant (16%). The responses in the open comments essentially refrain those given in the previous question.

The last question was designed to help develop understanding of whether or not the activities conducted by Independent Activities practitioners were already part of the offer to the visitors in any AOAMs (see fig. 4. 31 above, Q. 44). The positive response here reached 65% of the whole category, but 12% disagreed with that statement. Neutrality increased a little compared to the previous question, reaching 14%.

4.6.1 Further research involvement – the last question.

A relevant number of respondents declared their intention of participating in the following phases of this study by answering to the last question "Would you like to get involved or contribute to this research on best practices of experimental archaeology in AOAMs a later stage?" (common to all categories: fig. 4. 36, Q. 45).

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2018 Online Survey - Total complete responses 181. Total respondents per category: Museum 34; Academic 69; Independent 80.

Chart: Lara Comis • Source: Comis 2019 • Created with Datawrapper

Figure 4.36 “Would you like to get involved or contribute to this research on best practices of experimental archaeology in AOAMs at a later stage?”. Online survey 2018 Q45.

There were some interesting and revealing comments among the open-ended “other” option. Some respondents stated that they need to have their institution approve any further involvement with the study on best practices. Some indicated that their involvement was contingent upon how much time this would entail, while others requested more information before they could proceed. In addition, a few respondents made remarks that it, in effect, would not be possible for them to participate for free, others left some playfully ironic remarks. Only 39 people elected to opt out, therefore the online survey can be considered as a successful means of engaging the respondents in interaction.

In conclusion, the survey received a good level of participation and yielded interesting results. It also evidenced support for the plausibility and the potential of engaging, and

most importantly consider, all the voices involved in the dynamic under scrutiny, even if in the restricted limits of a PhD research.

Unfortunately, the pandemic after the Covid19 outbreak at the start of 2020 rendered impossible all plans for furthering contact with the respondents on a research practical level (on the field), by a *de facto* suspension of the social dynamic under scrutiny within the temporal limits of the funding of this research. The adaptation to the ongoing situation made it necessary for the subsequent research to be focused on virtual collaborations (see Chapter 6).

4.7 Cross category qualitative analysis: Experimental Archaeology

The cross-category analysis was performed in two ways. The first dealt with the relational aspects in order to map the mutual interactions among the categories of respondents. This will be illustrated below in the final paragraph of this chapter (4.8). The second cross-category analysis dealt with the conceptual mapping of textual data on the topic “experimental archaeology” given in the open comments, with emphasis given to the descriptions of the “latest example” (questions: 7, 25, 34).

The emerging map, extrapolated from the existing responses as in the other comparable research output of this study, turned out to be quite complex, with some elements and logical passages requiring further clarification (fig. 4. 37).

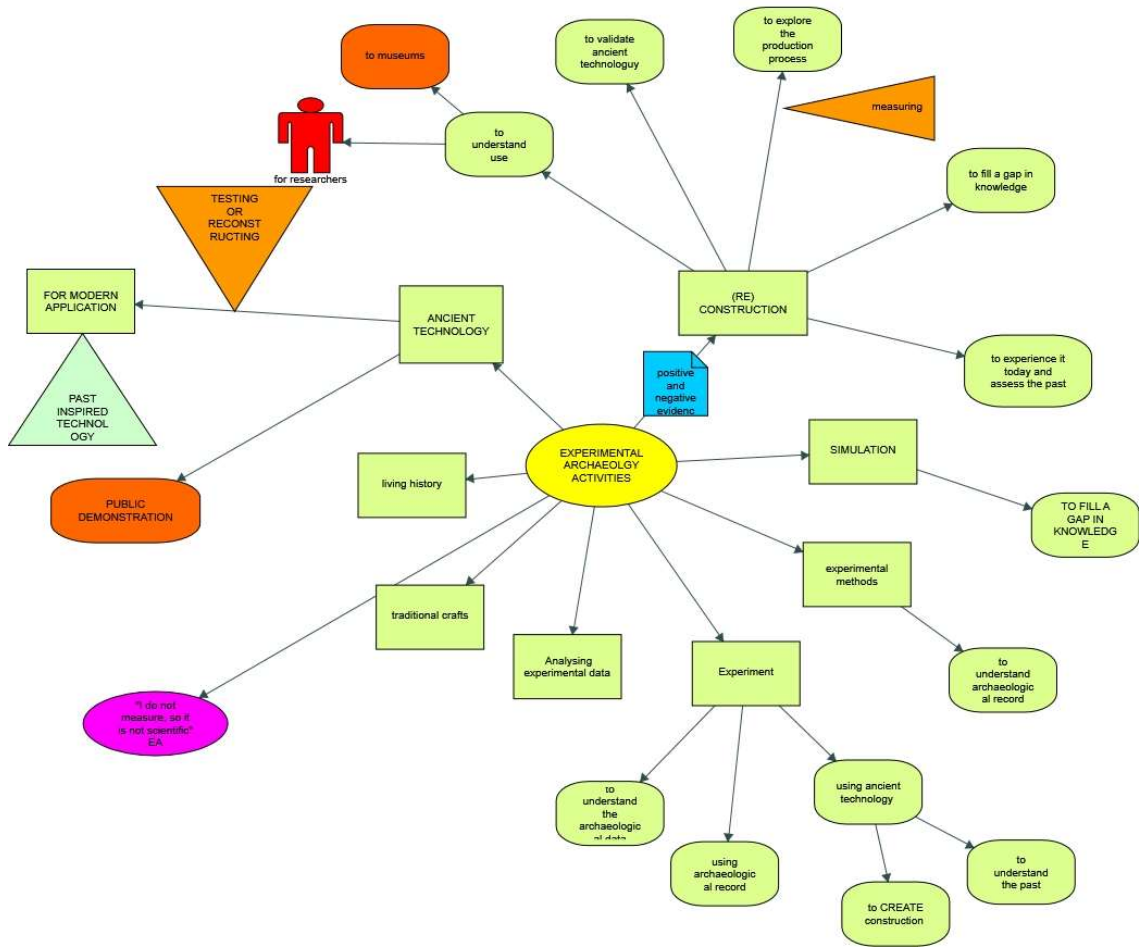


Figure 4.37 Cross Category analysis: conceptual map on textual gathered data from "latest experimental archaeology examples". Questions: 7, 25, 34. Online survey 2018.

One of the most important aspects of the concepts gathered relates to the need to clearly state the purpose of the experimental archaeology activity. Most of the respondents felt the need to specify the “why” behind the activity, to articulate the research purpose underlying their practice. The major clusters of meaning contained expressions such as “*to explore*”, “*to validate*”, “*to understand*”, “*to fill a gap*”, which recurred across all categories. This is particularly clear for the logical thread that starts with the term “experimental archaeology activity”, which is then followed by the word “experiment” and the expression “experimental methods”, and that constitutes the most uniform thinking process behind the textual entries. But these statements of purpose were sometimes mixed with, or placed after, some broader concepts such as “ancient

technology”, “living history” and “traditional crafts” which do not actually have embedded within them research as primary purpose (left hand side of the map: see fig. 4. 37). This logic is not straightforward, but it does represent a reality of practice in experimental archaeology. As has been observed previously, the questions, the “whys” of experimental archaeology, are sometimes born during processes whose aim is not primarily the enhancement of knowledge: a classic example would be the act of creating an artefact solely for the purpose of replication (see Chapter 2, and Comis 2006, 2010). This aspect of experimental archaeology practice seems to be even more in evidence, on another side of the conceptual map, where concepts such as “re-construction” and “replication” are used explicitly after the term “experimental archaeology”. It must also be pointed out that some entries actually used the term “ancient technology”, in a causal sense, after the concept of experimental archaeology itself. This is in stark contrast with some other entries, which bypassed the concept of experimental practice and jumped directly to ancient technology. It must be noted that there was inference referring also to the “*analysis of experimental data*”, directly connected with the main concept as was noted above (see above: paragraph 4.5). This is a relevant introduction to the constellation of meaning pertinent to the activity of experimental archaeology and focuses attention on the scientific process that is embedded into a rigorous application of the experimental method after the experiment has been conducted. To date, this has not been stressed very frequently in the literature, or in experimental archaeology training, either in universities or in other institutions. This probably happens in instances in which the “scientific” aspect of experimental archaeology is not fully understood, and emerges through the misconception, present in the textual data, that “measuring is experimental archaeology, I do not measure, therefore I am not doing experimental archaeology”. As was noted in the second Chapter, this misunderstanding deals with the confusion between methodology and epistemology, and specifically from the failure to correctly differentiate between science and quantitative methodologies.

“*Measuring*” is indeed one of the actions cited in the experimental process and is coupled with “*testing and reconstructing*” in some entries.

When the logical chains were concluded towards some entity which could be interpreted as an external individual or collective out of the restricted field of experimental archaeology practice, it is important to note that “*researchers*”, “*museums*” and “*public demonstration*” were mentioned.

One of the most significant new inferences in the constellation of meaning of experimental archaeology activities is the one which, following the lines drawn in the direct “jump” to “ancient technology”, states a purpose for contemporary society through the creation of “*past inspired technology*”. Indeed, “Applied Experimental Archaeology¹¹”, might actually be a way in which experimental archaeologists or ancient technology specialists are dealing with their social responsibility. Although it must be noted that, in the online survey analysed data, it was limited only to ancient technology and thus it was not explicitly linked to the interpretation of the archaeological record.

4.8 Cross category Network analysis – Graph Theory

As a part of the in-depth text analysis, the responses dealing with the connections or ties between activities, physical locations and categories of respondents (“actors”: De Nooy et al. 2005 p. 5, Peeples 2019 p. 453) were mapped through a graph. In this analysis both closed and open-ended responses were gathered and scanned to identify mutual connections. New categories, as well as new locations, were recorded and inserted in the graph. **Graph theory**, a mathematical representation of an interconnected system, was deemed to be the most effective way to visualize and further analyse the emerging network (Fischer 2011; see also De Nooy et al. 2005; Peeples 2019; Bazeley 2018, p. 47; Brandes & Erlebach 2005). Basic skills were acquired, with dedicated training on the use of the Gephi software which was used to build and visualize the graph. Despite having used this tool at a very basic level, the exercise demonstrated a tremendous potential for further research, and highlighted a possible use for this tool in the analysis of the archaeological record itself (see the review by Peeples 2019 and one example in Amati et al. 2020).

All the categories analysed were divided into three groups: locations, actors, and activities. Each group contains the nodes, or vertices, through which the graph was developed (see De Nooy et al. 2005, pp. 5-8). Every mutual relationship or contact which emerged during the analysis of the questionnaire results was then recorded and considered as an edge connecting two nodes. In the resulting graph, every edge has been considered undirected, although it would be interesting to map the directions between the connections. The frequency of the edges occurring in adjacent nodes has been underlined in the graph, as well as the degree of each node. The order of the emerging graph is $|V| = 32$ and the size $|E| = 501$. The complexity of the graph is immediately suggestive of the strong interconnection between the vertices.

The primary observations that can be made in light of this analysis are the degrees of the vertices, illustrated below. The degree is the number of edges, or connections, that one specific node achieves across the network. Although this ranking is not intended to deliver a faithful representation of the reality of experimental archaeology social dynamics, and therefore the ranking of the nodes based on their degree is NOT an assessment of measurable values, the number of connections in the observed sample relational network can be used as an indication of the social actors on the scene, on the most frequently used words related to activities and of the places most mentioned in the questionnaire responses.

As we can see in the table below, the node which has the highest degree, and therefore the highest number of connections, is a sub-category of the Independent Activities, i.e. professionals, external contractors and service providers. The activity of experimental archaeology as carried out by the academics has the next greatest degree, considerably less than its predecessor. At again quite an interval, the third vertex, as listed by degree, is the non-profit association, another sub-category of the Independent Activities. Then three activities nodes are attested, all within a tight range of degrees between them.

Label	Degree
Professional/external contractor/service provider	170
Academic EA	126
No profit association	87
Experimental archaeology	75
Ancient technology demos	73
AOAMs EA	71
Volunteer	71
Experimental archaeologist	54
AOAMs	42
Other academic staff	34
Museum staff/ operator	31
Traditional museum	27
Events	17
Private (owned or client's)	16
Employed	14
Independent researcher	13
Archaeological/historical site	13
Public locations (parks, reserves)	9
Occasional worker	7
PhD student	7
Schools	6
University grounds	5
Archaeologist	3
Post doc researcher	2
Students	2
University	2
Academic Archaeology dept.	2
MA student	1
Outdoor camps	1
Wilderness schools	1

Craft centres	1
Police/fire services.	1

Legend

Label: name of the node

Degree: total number of edges for each node

Green: activities; yellow: physical places; light blue: social actors.

If we move on to consider the weight of the edges between the nodes, i.e. the number of the recurring connections between nodes, we can again rank them as in the table below. It must be reiterated that the figures do not represent a definitive snapshot of the actual situation, they only reflect a qualitative picture of the connections emerging from the questionnaire responses.

Source	Target	Weight
Academic EA	Experimental archaeologist	34
Academic EA	Other academic staff	34
Experimental archaeology	Professional/external contractor/service provider	30
Ancient technology demos	Professional/external contractor/service provider	30
Academic EA	Volunteer	25
Professional/external contractor/service provider	AOAMs	21
Ancient technology demos	No profit association	20
AOAMs EA	Experimental archaeologist	20
Experimental archaeology	No profit association	18
Professional/external contractor/service provider	Traditional museum	18
Academic EA	Professional/external contractor/service provider	16
AOAMs EA	Museum staff/ operator	16

Academic EA	Museum staff/ operator	15
AOAMs EA	Volunteer	14
Professional/external contractor/service provider	Archaeological/historical site	12
No profit association	AOAMs	11
No profit association	Traditional museum	10
AOAMs EA	Professional/external contractor/service provider	10
Ancient technology demos	Volunteer	9
Professional/external contractor/service provider	Events	9
Professional/external contractor/service provider	Private (owned or client's)	9
Experimental archaeology	Volunteer	7
No profit association	Events	7
Experimental archaeology	No profit association	5
Ancient technology demos	Independent researcher	5
Volunteer	AOAMs	5
No profit association	Private (owned or client's)	5
No profit association	Archaeological/historical site	5
Experimental archaeology	Independent researcher	4
Professional/external contractor/service provider	Schools	4
Volunteer	Archaeological/historical site	4
Experimental archaeology	Employed	3
Ancient technology demos	Employed	3
Professional/external contractor/service provider	Public locations (parks, reserves)	3
Professional/external contractor/service provider	University grounds	3
Volunteer	Traditional museum	3
Employed	AOAMs	3
AOAMs EA	Archaeologist	3
Experimental archaeology	Occasional worker	2

Experimental archaeology	PhD student	2
Volunteer	Public locations (parks, reserves)	2
Independent researcher	AOAMs	2
No profit association	Public locations (parks, reserves)	2
No profit association	University grounds	2
Employed	Archaeological/historical site	2
Occasional worker	Archaeological/historical site	2
AOAMs EA	University	2
AOAMs EA	Academic Archaeology dept.	2
Experimental archaeology	Post doc researcher	1
Experimental archaeology	Volunteer	1
Experimental archaeology	Independent researcher	1
Experimental archaeology	Professional/external contractor/service provider	1
Ancient technology demos	Occasional worker	1
Ancient technology demos	Post doc researcher	1
Ancient technology demos	PhD student	1
Ancient technology demos	Volunteer	1
Ancient technology demos	Professional/external contractor/service provider	1
Ancient technology demos	No profit association	1
Academic EA	Police/fire services.	1
Academic EA	Students	1
Outdoor camps	Professional/external contractor/service provider	1
Craft centres	Professional/external contractor/service provider	1
Professional/external contractor/service provider	Wilderness schools	1
PhD student	Events	1
PhD student	Private (owned or client's)	1
PhD student	Traditional museum	1

No profit association	Schools	1
Employed	Public locations (parks, reserves)	1
Employed	Private (owned or client's)	1
Employed	Traditional museum	1
Occasional worker	Public locations (parks, reserves)	1
Occasional worker	Schools	1
AOAMs EA	PhD student	1
AOAMs EA	MA student	1
AOAMs EA	Independent researcher	1
AOAMs EA	Students	1

Legend

Label: name of the node

Weight: number of connections for each pair of nodes.

Green: activities; yellow: physical places; light blue: social actors.

As a final step, the graph was created and analysed so that the emerging dynamic of connections could be visualized. This analytical tool provides a means to observe and interact with the mapped dynamic in a number of possible ways, by re-organizing the network in space without losing the relationships between the nodes (Brandes & Erlebach 2005, pp. 3-4). In this case, only a basic analysis was performed (no algorithms were applied), and the dynamic under scrutiny was highlighted by locating the actors who sustain the connection existing between academic experimental archaeology activities and AOAMs experimental archaeology activities. The aim was to bind the case (Yin 2018, p. 28-31) and detect the stakeholders who sustain the social phenomenon dynamic under scrutiny (see fig. 4. 38).

By highlighting the relationship pattern across all the survey categories, the graph offers many other analytical possibilities. For the sake of brevity, and because of the

relatively high complexity of the graph, only the relationship specified above was investigated in this study, to as a guideline for research in the field.

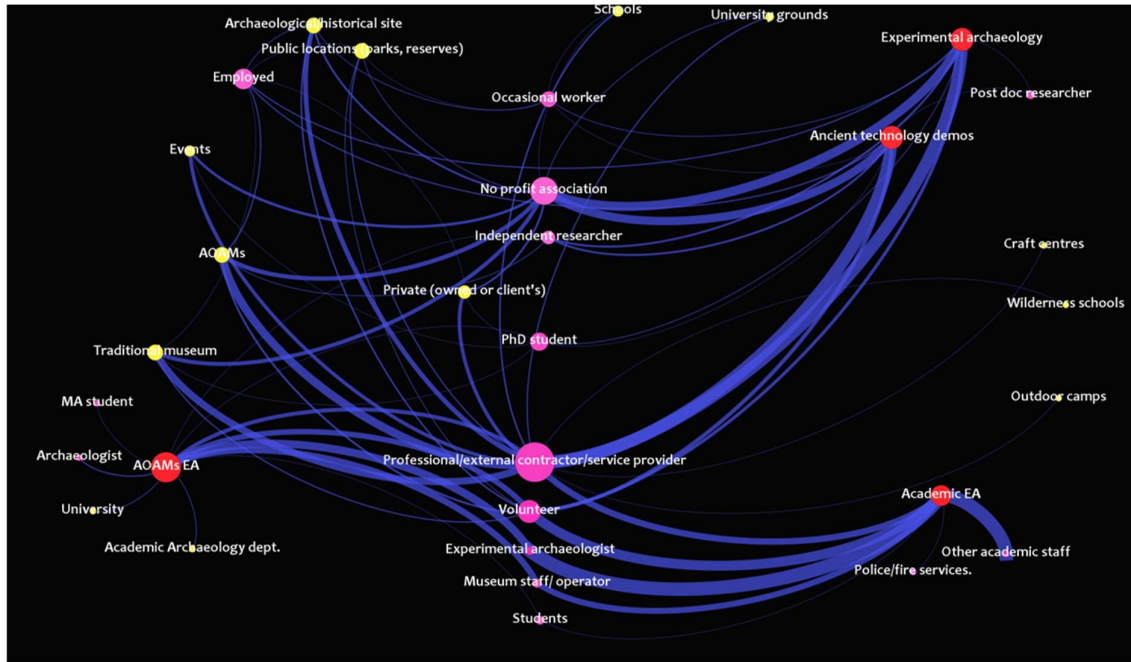


Figure 4.38 Snapshot of the resulting graph mapping the dynamics among locations, category of respondents and activities. This snapshot is highlighting in the low central area the 5 actors who sustain both academic and AOAMs experimental archaeology activities. Legend: yellow=locations; pink=actors; red: activities. Blue lines: edges. Circles: nodes.

According to the mapped relational data extracted from the survey, the actors who are involved in experimental archaeological activities in Academia and AOAMs, and thus sustaining the potential and ongoing “dialogue”, are:

- Professionals/external contractors/service providers
- Volunteers
- Experimental archaeologists
- Museum staff/operators
- Students.

The pilot study for in depth interviews and observations targeted two events in AOAMs which included representatives of the categories above listed, thus providing an excellent opportunity of assessing the qualitative aspect of experimental archaeology activities in AOAMs with the active participation of the academic sector. These events were meant to provide a baseline for the anticipated second fieldwork research campaign, which, unfortunately, could not happen because of the restrictions imposed by the Covid19 pandemic. The results of the qualitative analysis, albeit limited to one country only, can be found in Chapter 5.

¹ The attempt to create a more solid structure to base this research on with the hosting HEI in which open-air laboratory facilities exist, begun in 2017 with the drafting of a five-year long management strategy, after the evaluation of the SWOT with the relevant stakeholders, and a promotional social media campaign for the research performed by the postgraduate cohort. The collaboration of the stakeholders stopped abruptly without explanations in July 2018. This, together with many other gatekeeping issues, was an insurmountable obstacle to the development and testing of a thorough marketing strategy for a research-led centre for experimental archaeology, which was among the originally intended outcomes of this research.

² In order to visualize this scarcity, it was necessary to change the colour of the word to highlight it within the frame of the word frequency cloud.

³ Reynolds's work had also tremendous impact on other European countries and in the founding of many AOAMs. See for example the case of L'Esquerda in Catalunya (Ollich et al. 2012, pp. 208).

⁴ The AOAM, founded originally as an experimental research centre, has undergone considerable transformations through the years since its foundation. Despite being an *avant garde* centre for collaborative and participative research in experimental archaeology since the start, it has changed its focus on edu-tainment as Holtorf has observed (Holtorf 2014). Even so, the past experience of Lejre can still teach sustainable ways to involve the public in sound research projects.

⁵ Epigeum Online Research Integrity – Social and Behavioral Sciences Course, Oxford University Press. Certificate 2458120732, obtained on 22/05/2019.

⁶ Regulation (EU) 2016/679, par. 28.

⁷ Regulation (EU) 2016/679, par. 33: see question 35, Appendix 4.

⁸ The scale of which is currently troublesome to calculate in any case.

⁹ The regulations about the circulation of excavation reports are different in every country. In some instances, it is possible to access an online directory with summarized data and archival information (as is the case in Ireland). In others the reports are only kept for internal management purposes in governmental institutions and are not easy to browse (Italy). This aspect hints to gatekeeping policies regarding primary excavation reports, which must be taken in consideration when the founding of an AOAM is enquired upon.

¹⁰ See for a comparison, the short article run on the analysis of experimental archaeology activities performed in Catalunya: Rojas Rabaneda 2018.

¹¹ This terminology, to which I was introduced by the work of Bill Schindler in 2017-18, refers to the application of newly discovered ways of interacting with nature which were learnt through the

experimental archaeology process and pertain to the lost human past. This terminology is the shift of “applied archaeology”, as conceived by Stump (2013) in regard to indigenous knowledge, a key development in the ongoing transformative practice of archaeology. The sustainability potential of applied experimental archaeology will find a place in the last chapter.

5

Pilot Case Study – Ireland

5.1 Introduction, preliminary work, and purpose of the case study

The overall framework of this project was geared towards detecting best practices in Experimental Archaeology and within AOAMs, and to enable a wider study at a European level during the summer of 2020, by introducing an assessment tool for AOAMs (Hockings et al. 2008) and researchers alike, together with the detected best practices.

At a preliminary stage, a Critical Case study (Yin 2018, p. 49) was performed in 2017 using a heritage management and tourism perspective on an Irish example: an abandoned reconstructed Rath named Lisnagun. The study provided a critical analysis in order to produce a strategic management plan which could be used in the salvaging of a failed AOAM in Ireland. The management plan was designed to “set the scene” for the underlying governmental and stakeholders’ culture, with a view to informing their understanding and attitudes towards those institutions (see Appendix n. 1 for the full analysis, plan, and bibliography).

A secondary preliminary work (2019) included the designing of a University Open Day Event. This was originally meant to happen within the remits of an open-air “experimental centre”, but this plan encountered many external obstacles, and the event had to be moved to a different location. Being set in a complete open environment, so different from

an AOAM setting or an experimental centre, the research performed during the event was considerably limited in both its applications and research results. During this event, research performed in the institution by a few members of staff and postgraduate students was designed to be part of the offer to the visitors through the development of a specific format for presentation. An anonymous questionnaire was distributed to the public to provide an initial assessment of the potential of participatory research involvement of this kind, as well as to allow for a general evaluation of visitor segmentation and feedback (fig. 5. 1). The design of the event and the assessment tool were meant to provide the basis for best practice modelling; however, the considerable inertia and limitations did not allow this work to be fine-tuned with the requirements of this thesis. Considering the later obstacles due to the Covid 19 Pandemic, though, the questionnaire delivered during the event provides the first attempt in shaping the assessment tool that was one of the desired outcomes of this thesis (see Appendix n. 5).



Figure 5.1 The anonymous questionnaire distribution table. Photo by author, Dublin, 8th June 2019.

This tool would have provided an important asset within a cyclical management format in heritage institutions, and ideally would have been constructed so as to be easily

inserted into the management of planned activities of an AOAM (see one model in: Popple & Mutibwa 2016, pp. 202-203). Moreover, the Citizen Science, participatory perspective was intended to provide the structure upon which to base the best practice model itself, providing another crucial asset, which could also help bridge the gap that exists between academic knowledge production and knowledge that is produced through collaborative practice with the visitors in AOAMs. As previously noted, due to the Covid19 pandemic, it was not possible to proceed with the fieldwork as planned for 2020. It was only possible to test the research strategy and expand upon the themes which emerged from the integrated method analysis of the survey's results in a pilot study performed in the summer of 2019 in Ireland (Yin 2018, pp. 106-109). It was not intended that this pilot study would determine a normative in any way, since testing a research strategy is not performing the actual research itself. It was rather carried out to:

1. Ascertain what kind of events (the bounded case) were involved in the interactions between all the subjects identified through the relational network analysis (see Chapter 4 above), within their actual context of application, i.e., in AOAMs.
2. Investigate the themes, along with the conceptual structure, as they emerged through the qualitative analysis of research participants interviews, and consequently structure the best practice model.
3. Provide a solid research ethics structure to enable bureaucratic and administrative support that could be adapted according to the location of the site and the national laws they are governed by (originally intended for, primarily, the research and, secondarily, the assessment tool).

Since there were two events happening in Ireland in the summer of 2019 which coincided with the network analysis detected characteristics, the pilot fieldwork also acted as a bridge to the wider fieldwork planned for the following year. It also provided an avenue for a practical assessment of all the administrative, health and safety, ethical and procedural papers needed to perform a fieldwork study in accordance with all the relevant international and national laws. The so called “technical papers”, which were tested in this case study and are required in every fieldwork research activity, are the most important practical output of this pilot case study, as they had to be produced and adapted according

to the local requirements. The attainment of a sufficient standard of practice to satisfy research integrity regulations in this way might also benefit those social science researchers who will be able to return to the field (see Appendix n. 6 for the full informed consent; Yin 2018, pp. 88-105).

The networking activity conducted with the two Irish AOAMs started immediately at the beginning of this study, in 2017. Contacts and collaboration were established through direct contact and preliminary visits. One of them, the Irish National Heritage Park, was already an EXARC member. The other, Craggaunowen, was outside the EXARC network and was contacted independently. In one case, the fieldwork proceeded quite smoothly, while in the other a considerable effort was required because of external academic resistance. Considerable amounts of time, energy and personal commitment were put into clarifying the collaborative nature of my research, the ethical guidelines that needed to be respected, and the right to academic freedom (GOIPG Terms and Conditions 2020, point 17, p. 13; The European Code of Conduct for Research Integrity 2017; EU Commission - Ethics in Social Science and Humanities 2018, pp. 3-4; Universities Act, 1997, 14; UCD Conflict of Interest Policy 2018, p. 1).

The two fieldwork activities were prepared and planned for in the first half of 2019 and performed during the summer of 2019.

5.1.1 Methodology

The pilot case study was designed to be performed using both public observations and in-depth, semi-structured interviews with selected stakeholders (Lawrence Neuman 2011, pp. 42-43, 320-321). The research on events performed in AOAMs and in direct contact with the public was focussed on those which involved the interaction among specific representatives from each of the four categories, summarizing data from the 4th chapter, as in the table below (fig. 5. 2).

Bounded Case in AOAMs to be targeted for performing research strategy test: categories of representatives

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-
- Professionals/external contractors/service providers
-
- Volunteers
-
- Experimental archaeologists
-
- Museum staff/operators
-
- Students.

Pilot Case Study Summer 2019

Table: Lara Comis 2021 • Source: Comis 2019 • Created with Datawrapper

Figure 5.2 Pilot Case Study. Bounded case in AOAM setting.

The two activities whose characteristics matched those above were part of archaeological field schools with “experimental archaeology training” components, and each had the same structure: they were annual activities performed during the AOAMs’ high season and both involved the participation of academics as experimental archaeologists together with professional archaeologists in the role of trainers. Both activities were approximately one week long in total, and both were performed in the presence of regular visitors of the museum.

The major difference between the activities conducted was that, in one case, the initiative was part of a close linkage with University Institutions, whereas in the other, a private company performed an intermediary role between all the stakeholders involved. The cost of these training activities was quite consistent for the limited number participants, most of whom fell within the category of international and local secondary education Students, while, in one case, participants were members of local associations. Academic credits were part of the offer, but not mandatory for the participants. Museum Staff were actively involved in various support activities related to access, maintenance

and logistics, health and safety, social media and other dissemination and promotional activities, and, in one case conducted guided tours of the museum that included the activity itself.

The stakeholders selected for in-depth interviews were all those involved except for the participants in the activities (Students). Students belong to a vulnerable category from a research ethics perspective which demands research strategy formats which were not scheduled in the thesis (GOIPG Terms and Conditions 2020, point 17, p. 13; UCD HREC Recommendations for Research with Student population 2010; Yin 2018 pp. 88-89). Despite this, two student participants offered voluntarily to take part in the research as interviewees. This necessitated a great deal of work to include them, to ensure full anonymity while still allowing them to member-check their contribution with full consent, as was the case for the other participants (see below paragraph 5.1.2).

Interviews were planned in advance. Full informed consent was obtained from all the subjects who agreed to be interviewed, either before the actual fieldwork or on the spot for those who offered spontaneously to partake in the research activities (see Appendix n. 6). The actual interviews were arranged and performed with:

- museum staff representatives, including management;
- academic experimental archaeologists (as service providers);
- professional archaeologists (as service providers);
- students.

It was intended that participants who fell within the category “volunteers” would be involved in the interviews, as per the analytical category above. Unfortunately, none were present within the selected activities¹.

Public observations were performed on the activities themselves, with interactions principally with stakeholders other than those in the Students category. The observations were targeting mainly the rare interactions between the trainers-students with the visitors.

As a standard social science research field practice, health and safety protocols were established and tested in the field (UCD SIRC 2015). The constant monitoring of the

research progress was noted in a research diary, which included notes and memos to prompt further reflection in the subsequent qualitative analysis.

To ensure the highest ethical consideration of the research participants, in addition to the informed consent, the research was structured to allow them to opt for a full revision of the script of the interview itself, in order to member-check their contribution and amend mistakes in transcription (Gibbs 2018, pp. 132-133; see Appendix n. 6).

The fieldwork research gathered a total of 11 interviews. They were then transcribed and sent for revision to those interviewees who chose the option for review (9 out of 11). Authorization to proceed with the analysis on the members' checked interview transcriptions was obtained in time from all 9 participants.

The qualitative analysis of textual data was then performed at a basic level with the Nvivo12 Software, and harmonized with personal observations, public observations, and research notes. See below for the illustration of results.

5.1.2 Unexpected difficulties and compromises in the field

As with most fieldwork research, some unexpected difficulties arose during the research activities. Notwithstanding the considerable effort to limit the health and safety issues involved in travelling to the location, ensuring suitable accommodation at the lowest possible expense, and consequent planning, the research strategy had to be adapted in the field. It proved necessary to limit the number of interviews (originally, it was planned that two follow-up interviews would be performed with each person, one before and one after the experimental activity). However, due to external constraints such as tight time scheduling, logistical problems, and technical problems only one interview was conducted with each stakeholder.

In addition, the actual participation of the public in the activities, and their interest in them, was considerably lower than expected. As such, it became apparent that the efforts and time devoted for this activity would have been better invested in performing a participant-observation as an overall strategy (Cohen, Manion and Morrison 2011, pp. 464-

468; Lawrence Neuman 2014, pp. 433-435; Yin 2018, pp. 123-125). Unfortunately, there was no possible way to change this strategy while in the field, as the participant-observation procedure is different in nature, it requires very different data gathering strategies, and needs careful consideration in order to meet the highest ethical standards; a process which cannot be improvised without the risk of invalidating the research procedure itself. Therefore, the strategy was implemented as planned.

As previously noted, the willingness of some representatives of the Students category to partake in the research required a careful adaptation of the informed consent and of the semi-structured interview in the field, in order to ethically gather data in a manner appropriate to their status. This effort has allowed the research to create a structure for gathering data from a group whose contribution would seem to be essential if similar research is to be performed again, even if the consequence was **the deleting of all information which could break the condition of anonymity for all the other participants as well**. This was to conform to the UCD ethical concerns and to ensure protection of the most vulnerable category of participants (UCD HREC Recommendations for Research with Students Population, 2010). Quotes from individual interviews will be therefore indicated with randomly assigned numbers

5.1.3 Interview structure and purpose

The semi-structured interview was designed with the help of the Research Panel at that time involved within the supervision of this thesis. The process benefited significantly from the perspective offered by one of its members, who is a professional in the field of research, cultural and archaeological heritage, and public outreach activities in Ireland (see acknowledgements).

The purpose of the semi-structured interview process was to obtain information and points of view on the relevant assets needed to detect the best practice model in the targeted format of activity (see the working hypothesis in paragraph 2.4.2). Also, from a critical praxis point of view (see above paragraph 3.4.2), the purpose of the interactions

with the investigator was meant to enable the opening of new perspectives and new tools for evaluating the impact of the activities amongst the interviewees themselves, within their contextual setting².

The interview protocol was designed in accordance with most apt methodologies drawn from the Social Sciences (shorter Case Study interviews, Yin 2018, pp. 118-120; general guidelines: Cohen, Luis et al. 2011, pp. 409-433; Edwards & Holland 2013) which are based on sound ethical considerations of the interviewees themselves. Below, the complete protocol.

INTRO: switch on and check recording device.

1. At ease (opening up a safe space, PI in listening modality).
2. Informed consent verbal confirmation.
3. Thank you for...

INTERVIEW

4. Could you describe your job position and the role you have in the activities?
5. What is, in your opinion, the added value of experimental archaeology in this particular setting (AOAMs)?
6. What works well in some places and what doesn't?
7. What are the lessons that can be learnt?
8. What are the common problems encountered?
9. Scale of what is being attempted, duration, audience/participants etc.
10. Key parameters for success and the key performance indicators that should be applied?
11. How can research be shared with the public in these activities?

Although the protocol as described may appear as a quite structured questionnaire, apart from the first three points (which are informed by ethical best practice), the order and the wording of the sentences acted as mere guidelines for the conduct of the interview. The questions were intentionally phrased in a very general way in order to let the interviewees feel free to develop their own perspective on the issue, a process that

proved to be crucial in the following thematic qualitative analysis. The interlocutors were thereby enabled to express themselves with spontaneity, and only rarely was it necessary to bring their attention back to specific topics central to the question itself. In terms of their design, questions 6 and 8 effectively asked the same question in different forms, and the answers were grouped according to the theme of advantages/drawbacks (see below).

5.1.4 General content of the activities

The prominence of practical training in ancient technology was evident in those parts of the investigated activities which related specifically to experimental archaeology. The presence of both the archaeologists and original archaeological finds and/or excavations within the location itself constituted the link between the experimental activities and the insights they could provide for archaeological interpretation on the field.

Even if most activities specifically linked only to manufacturing processes and functional studies, the potential for actual comparison with the archaeological primary sources and methods, as mediated by both the archaeologist and the experimental archaeologist, was the most transversal of the research skills that was attempted to be transferred to the participants.

In one of the events, a specific technological process that was particularly relevant for Irish archaeology was selected and carried out in its entirety (in other words, apart from the primary sources retrieval, the entire *chaîne opératoire* was performed). In the other, even if experimental archaeology was one of the many topics in which the students were to be trained during the field school, multi-technological ancient skills were addressed through the contribution of various university students who were participating as specialists, together with the trainers.

Two other relevant differences between the activities conducted in the two venues were the structure of the activities offered to the participants, and the actual numbers of participants. As the ratio between participants and trainers was addressed in one of the questions of the interview, the theme will be discussed below.

In addition, the ways in which the museum staff interacted with the ongoing activity was slightly different from one venue to the other, due to different external circumstances.

Below, a brief description of both venues is given.

5.1.5 Craggaunowen, County Clare, Ireland.

This Archaeological Open-Air Museum is located northwest of Limerick, in County Clare, near the west coast of the island. It consists of a spacious and well set out vegetated area, which includes a pond and woods set on gentle hills and is situated a few miles from the nearest village. A sixteenth century castle is also part of the AOAM and sits in close proximity to the pond. The tower house structure of the castle is a notable heritage landmark within the historical landscape of the area. The original building was rebuilt and enlarged during two restoration campaigns, the first at the beginning of the XIX century, the second in the 1960s (Craggaunowen Website – Castle). Although the date of opening provided in the EXARC Venues Page refers to 1990 (EXARC Venues – Craggaunowen), according to information accompanying a small photo exhibition in the castle, construction of the AOAM itself took place during the 1970s, involving the active participation of local craftsmen (fig. 5. 3). The (re)constructions include a crannog in the pond (fortified settlement on an artificial island, fig. 5. 4), a ringfort (fortified settlement on dry land). Both are circular in shape and typical of the Irish human landscape. The site also features a reconstruction of a prehistoric monument (dolmen), a fulacht fiadh (complex structures associated with a rectangular lined pit for boiling water), a portion of an iron age wooden track, and the permanent exhibition of the “Brendan’s Boat”, whose design and construction drew upon ancient sources, and which travelled the northern seas in the 1960s. The trails within the park abut some fenced areas in which ancient and local breeds of animals can be found, while some green areas have been used to grow some archaeologically attested crops.

The subtitle of the venue, “The living past” refers to educational offers for schools and groups of visitors that include craft demonstrations, hands on activities and performative engagement.

The venue is managed by a corporate-structured tourism company which oversees many other heritage venues in the area and across Ireland. The premises are directly managed by a director in charge, and, at the time of the visit, three alternating professional guides were providing and animating demonstrations of ancient crafts and stories from ancient lore in the AOAM.



Figure 5.3 Craggaunowen. Picture of the "Building of the Crannog, 1974", exhibited in the Castle. Photo by author, Craggaunowen, 5th April 2019.



Figure 5.4 Craggaunowen. The Crannog. Photo by author, 5th April 2019.

5.1.6 The Irish National Heritage Park, County Wexford, Ireland.

The Pairc Naisiunta Oidhreacht na hÉireann, or Irish National Heritage Park (INHP), is located on the outskirts of the town of Wexford, which is situated in the southeast of the island of Ireland. It consists of over 40 acres of woodland and spans a site that extends from the estuary of the river Slaney to the deep woodlands up in the adjacent hills. It includes the remnants of a castle dating back to the Norman period, in which archaeological excavations are still ongoing (INHP webpage – Carrig Project). It also includes a dedicated area for archaeology field school close to an area dedicated to falconry. The park experience for visitors is articulated by a time-trail through the ages, starting with reduced scale reproductions of Mesolithic settlements, then “true” to scale Neolithic houses, a Neolithic burial, a Bronze Age stone circle, a fully functioning fulacht fiadh (fig. 5. 5), a ringfort of early medieval type, an early Christian settlement, and a medieval mill and corn kiln. The path then leads to a crannog and a Viking settlement. The shopping area and the restaurant are open to non-visiting guests during normal opening

times (Covid restrictions are still quite strict in Ireland at the time of writing this paragraph). The park opened in 1987.

The park's main activities include tours with guides in costume, school tours, and a wide range of craft activities, courses, and workshops. The offer to the visitors also extends to accommodation within some of the premises and special performative events (INHP webpage – Events).

The venue is managed directly by a substantial team of dedicated people and is collaborating with some of the major National Heritage agencies in the country.



Figure 5.5 INHP. The fulacht fiadh in function. Photo by author, 21st June 2019.



Figure 5.6 INHP. View on the Crannog. Photo by author 21st June 2019.

5.2 Thematic Analysis Results (first level coding)

The qualitative analysis performed on the member-checked textual data retrieved during the interviews was carried out using basic qualitative analysis³ by extracting information regarding two primary areas. The first area encompasses the practical side of the activities, the consequent issues, and the nature of the categories of stakeholders within their contexts. The second was the purely conceptual thematic contribution to the main themes of the overall study, as it emerged in the real-world context. Public observations, notes and memos by the PI were then integrated into the overall description of the results. See Appendix n. 7 for the report on the analytical nodes extracted from the textual data. Below is an illustration of results divided according to descriptive nodes⁴.

5.2.1 Roles

The responses from people who were interviewed as representatives of one or other category were investigated in terms of the role they performed within the activity. It became apparent during the analysis that different roles and tasks were performed by people whose role therein did not necessarily correspond with their self-given formal categorization. It was, therefore, considered useful to set the categories on a spectrum, based on formal responsibility towards the public within the museum activity, and to monitor the actual roles within the context itself. Please note: the roles in the table below were directly attested by the categories of interviewees themselves, listed according to the category in which each interviewee functioned. The contact with the public (last two columns) is derived from the public observations by the PI.

Category	Roles	Direct contact with the public	Indirect contact with the public
Museum Staff	Logistic aid – promotional activities – managing guided tours – leading guided tours – performing ancient technology demonstrations – performing live interpretations – actively participate in the experimental activities	Continuous	Continuous
Archaeologist = service provider	Designing the activity – networking and partnering – provide logistics indications to the museum staff – managing students – promotional activities	Sporadically	Sporadically
Experimental Archaeologist = service provider, from Academia	Instructors – design their part of the activity – managing students – give logistics indications	Only during their own activities	Continuous
Volunteers	N/A		
Students	Learning – acquire technological skills	Sporadically – explain what they do	Continuous

The interviewees in the Museum Staff category have proven to have the widest spectrum of duties and relevant skills, while also in constant engagement with the public in the museum at any given moment (*“Someone like me and the rest of the tour guides you have to nearly become an “ildánach”, (master of all arts)”*, Ref. 09 – see Paardekooper 2012 pp. 278-279). Thus, this category carries the greatest burden in terms of effort, pressure and skills which are needed to perform the museum activities (fig. 5. 7). The Archaeologist (service provider in this case) on the other hand, has a leading role in designing and managing the activity itself, but only rarely is actively engaged with the public. The Experimental Archaeologist (again as service provider in this case), has significant responsibility, during the activities and beforehand, especially in managing the students and the technical content, and for the logistical elements required to perform them. They may interact sporadically with the public during their activities but are always seen by the visitors in whatever action they perform. As for the final category (since no volunteers were present at the two chosen activities), that of the Students themselves, although they all specified their role as that of learning and acquiring ancient technology skills, they were also seen interacting with the public on some occasions, explaining what they were doing. They were, in any case, always visible to the public during all the activities.

The conclusions of this node analysis have therefore shown how crucial the human resources of the AOAMs are in the performance of these kind of activities. They have also highlighted the potential to increase the acquisition of transversal skills for the students themselves through their interactions with the public. On the other hand, though, the exposure of both the experimental archaeologists, as instructors, and their students to the public, could be better framed with greater ethical attention to non-verbal communication in the enactment of the ancient technology activity offered to the public. In one observation, for example, untrained students were expected to perform, in front of their peers and the public alike, a crucial key aspect of an ancient technology which they had no prior experience. This situation, if not performed with attention to the ethical status of the students, could cause them distress, especially if the “success” of the ancient technology demonstration is preferred to their learning and wellbeing.



Figure 5.7 Craggaunowen. Museum Staff interacting with the public. Photo by author, 12th July 2019.

5.2.2 Added values of experimental archaeology activities within an AOAM setting.

This node provided interesting information and concepts which may prove to be valuable aids in the shaping and designing activities for similar settings in the future.

Benefits of EA activities in Museums setting: “It tells a better story”

Respondents belonging to the category of Museum Staff highlighted the enhancement of their performance in dealing with the public thanks to the experimental archaeology activities. More specifically, they referred to becoming more confident in the explanations they gave, and more satisfied in the way they engage the public in the museum activities. This enhancement was attributed to the insights gained from witnessing or participating in an experimental archaeological activity. In the words of one of the respondents:

[...] you discover so much more, and it gives so much more to the public.

Ref.09

Also, for Museum Staff working at a management level, the experimental archaeology activities contribute to attracting repeat visitors, thanks to their engaging and always original content. In one specific interview, a deeper reflection on this theme highlighted the “generative” value of experimental archaeology in the communication and storytelling of the museum itself (Ref. 02).

The offer to the public was deemed to be enhanced by the fact that, if visitors choose to, they can directly interact and converse with the instructors, who are specialists in their field or academics.

In conclusion, AOAMs were benefitting from the experimental archaeology activity, both through the quality of the offer to the public as a long-term benefit (tell a “*better story*”), and for the novelty of the content itself (tell a “*new story*”).

It must also be added that a couple of interviewees highlighted the fact that the introduction of experimental archaeology activities within the field schools in their respective AOAM constitutes new business, which can benefit both museums (“*genuine research*” as an added value, Ref.07) and the private heritage companies (“*it’s a new market*”, Ref.03).

Benefits of EA activities in the Museums setting: “lived rather than explained”

The experiential aspect of an experimental archaeology activity, even if only behold by the public, was felt by respondents to be very significant in most of the interviews. Museum operators and guides were focussed on the ways in which engagement through “live action” activities such as these can convey greater meaning to the public, from both an educational point of view, and from an involvement point of view. Other respondents pointed out that the live experience carries greater veracity for all those involved: “*it’s like real life, really*” (Ref.05). We will see below how this node has introduced important second level concepts correlating to the main themes of the overall study.

The possibility of engaging the public through hands-on activities has been framed by the interviewees as a great tool with which to involve all manner of people, for example those who do not feel comfortable speaking, but might be eager to use their manual abilities, or schoolchildren with particular physical or emotional needs (Ref.06). Moving even further in the involvement of the public, some interviews highlighted the way in which the full sensory involvement (including smell, and taste) contributes to making a lasting impression on visitors and how, compared with a dry setting such as a lab, reintroduces the human component, which is difficult to reproduce in closed environments (Refs. 01, 11).

Benefits of EA activities in Museums setting: “extra dimension of immersion”

Going deeper into the analysis, the co-presence of the natural setting within the boundaries of the AOAMs allowed the respondents to recognise another benefit derived from experimental archaeology activities, such as in the case of one respondent who defined it as the “*Extra dimension of immersion*”. Others defined it simply as the surrounding “*atmosphere*”⁵. To clarify this position, which might be seen in terms of the benefit to experimental archaeology, rather than from experimental archaeology, it must be stressed that these perspectives derive from the very personal experience of every respondent, regardless of their role in the activity. In other terms, the opportunity to run an experimental archaeology activity in a location that can provide all the means (natural resources) for tackling ancient problem-solving activities is felt as a crucial aspect for

involving the public into the activities themselves. It also contributes, in the emerged analysis of the interviews, to the extraordinary resonance in the memory and minds of the participants. It seems that the experimental archaeology activity is here positioned within a further perspective, which will be treated in the conceptual analysis below.

Benefits of EA activities in Museums setting: “Sustainability”

Following on from the previous code, although only mentioned in one of the interviews (Ref. 02), the transversal, major theme of sustainability emerged in relation to the possibility of interacting with natural resources like those available in the past. In the words of the respondent:

Getting people to connect to resources gives them an awareness, a really keen awareness of the environment in a way that recycling campaigns never would.

Ref. 02

Benefits of EA activities in Museums setting: “Virtuous cycle experimental archaeology- archaeology”

To conclude this node analysis, three respondents demonstrated awareness of the potential benefit of the interaction between experimental archaeology, field archaeology and, in one case also material culture studies. The respondents defined this potential as a “Circular process” (ref. 03) and stated that EA activities in AOAMs settings

Bridge(s) the gap between the excavated material and the open air museum and the reconstruction side of it.

Ref. 04

Expressed in other terms, and as previously envisioned in the methodological proposal years ago, cited in the Chapter 2 and used in this work as a working hypothesis (Comis 2010, see Chapter 2, paragraph 2.4.2), the presence of activities such as those investigated during this pilot study could “complete” the offer to AOAM visitors by providing them the means to understand the (re)construction process (the history behind the product) and, as pointed out by the respondents of the interviews, provide the researchers and archaeologists with the opportunity to both investigate new interpretations and deepen their understanding of fieldwork activities.

5.2.3 Advantages and drawbacks.

This section groups answers referring to both advantages and drawbacks of experimental archaeology activities in AOAMs. The results of the first level coding of this node will be divided into two sections: the first will deal with all the material aspects and external conditions, such as logistics and internal management which affect, in the view of the interviewed stakeholders, experimental archaeology activities within the AOAM setting. The second section will illustrate other important aspects which were felt as relevant in the contrast triggered by the questions.

Advantages/drawbacks: external factors

Funding and finance are, of course the main aspect which needs to be addressed in the running of any experimental archaeology activities in AOAMs. Among the other major external limitations, the interviewed stakeholders pointed out the need to comply with insurance, bureaucracy and health and safety regulations. However, despite the fact that each country has its own, clearly defined national and local laws and regulations, and that AOAMs usually have already in place all the relevant policies and mitigations, the designing of an experimental archaeology activity can still set challenges not covered by those policies and needs to be carefully planned well ahead of the time it is to be conducted (Refs. 02, 07, 08).

Time was another important factor identified amongst the drawbacks and difficulties of getting the full potential from the activity. Some respondents pointed out that the time-frame seems always to be too tight to fulfil the full potential of the activity, for museums and participants alike (Ref.09). On the other hand, for those who hold more responsibility within this framework and are not local residents, the activities may demand a total sacrifice of personal time and family duties (Ref. 08).

Going deeper in the structure of the activities themselves, management issues were seen both as positive and negative factors: considering the mixed nature of the learning activities, intermingled with logistics and public outreach duties, the management of the participants presents interesting challenges, for the instructors and specialists particularly (Ref. 08).

The most frequently mentioned difficulties across all the interviews were logistical difficulties, identified as being due to the physical location and characteristics of the AOAMs. Accessibility of the venue itself was also mentioned; both museums are difficult to reach with public transport (Ref. 11) and to the sourcing of the external supply for the activities themselves can be problematic (Ref. 05). Within the remits of the museum itself, the need for a more coherent “learning space” with a storage area was identified as a possible enhancement of the venue (Ref. 04), with the respondent pointing to the potential development of an “experimental archaeology area” as an asset for future activities.

Other consequences of the location of the venue mentioned in one of the interviews was communication difficulties. Internet connection might be poor and can hinder the sharing of experiences in real time with the outside world, as well as limiting communication at a personal level (Ref. 10).

The weather was mentioned in three interviews as something which can impact both the activity and the flux of visitors during them. Considering the extreme weather variability of Ireland, this was a major point. Some respondents highlighted the need to “*weather-proof the activity*” (Ref. 03), as some actions in experimental archaeology activities really do rely on the performance of the whole process in order to produce “*results*”.

External factors that are often beyond control, such as those listed above, also have another dimension to them which can actually be of considerable advantage to the activities here under scrutiny. Every category of respondent was appreciative of the physical setting in which the activities were taking place. The major positive aspects of this “*ideal location*” (Ref. 01) were:

- natural setting (closer to “the past”)
- silence and quietness, far from modernity: the atmosphere.

Since the AOAM provides this peculiar atmosphere, enhanced by, and embodied within the natural setting and the distance from the contemporary world, all the respondents agreed that this adds to the positive experience of all the people involved, beginning with museum staff, and including the public themselves.

In relation to the activity, in settings which are physically suggestive of the past, some respondents stated that it is easier to think about practical aspects of life in the past. Intertwined with pre-existing knowledge of archaeology, this can stimulate the formation of new questions and previously unexplored solutions to archaeological interpretations (this aspect feeds back into the virtuous cycle highlighted above). It is thanks to this atmosphere also that visitors can discover a different way of interacting with nature and the past itself: “*opening new things in people*” (Refs. 01, 02, 08, 10).

Another advantage of this peculiar setting, in which dynamic and engaging activities can be linked both with the local archaeological and historical setting and with the natural resources, is a sort of “situated knowledge”, which can be linked back to the concept of the Genius Loci described in Chapter 2 (Refs. 02, 07).

Advantages/drawbacks: internal factors

The opportunity to programme long term experimental archaeology activities in an AOAM setting was considered by respondents as advantageous. The continuity of the same kind of activity across time was considered to be a signpost for quality and pride for the public, although no insights were garnered from respondents in terms of the optimum research potential which this situation might yield (Ref. 01).

Related to the previous code, and seen from a museum management perspective, experimental archaeology activities were felt to be a “*new attraction*”, which could help the museum venue in attracting new and returning visitors; local, national, and international (Ref. 03).

The theme of internal management clearly bore a strong relationship with the issues of sourcing materials and logistics. At venues in which human resources are scarce and financial management is physically detached from the venue, it was suggested that issues regarding shift coverage and provision of the assistance and resources essential to the activities might prove to be problematic.

Finally, in relation to the interaction with the public, the respondents noted that the development of a transversal skill would be a valuable educative outcome for students. The fact that visitors can interact with students engaged in the activities pushes them to both develop new communication skills and to think differently about how to understand and explain what they are doing. In such instances, a friendly environment might enable students participating to the activities to avoid the natural pressure of being responsible for communication with the public (Ref. 03, 07, 10).

5.2.4 Lessons to be learned.

This was by far the most general question of the interview, and the answers reflect an amazing array of points of view and ideas, which really evoke the complexity of the learning experience as it is perceived from the perspective of the individuals involved. The indirect outcome of this question is the indication of the unbounded potential of individual approaches to the phenomenon under scrutiny, which also constitutes its richness and versatility.

Seen from the perspectives of AOAMs, most of the respondents highlighted how getting in contact with the instructors and archaeologists helps expand their knowledge of the themes they work with during outreach activities with the public. This contributes to

building a solid background knowledge, while also increasing the levels of confidence and embodied knowledge (Refs. 05, 06, 09). This aspect constitutes the basis on which the code *“it tells a better story”*, described above among the added values category, develops from.

Another theme that stems from the code of sustainability, described previously, was the highlighting of a transversal skill that derives from the teamworking embedded within certain experimental archaeology activities undertaken with the public. The problem-solving facets of these kind of activities, performed as part of a group, is felt as highly educative, as well as experientially engaging, constituting an important asset for the museum in efforts to attract returning visitors (Ref. 02).

In some instances, the educational side of the activities was addressed from the perspective of pure research. Two paths were highlighted from which these experiences might foster further progress in archaeological research. The first stems from the purely ancient technology perspective, seen in terms of physical skills: the more they perform, the more they learn. The second was set within a more scientific framework, in one specific example, as the process required for the development of skills necessary to design and perform actual scientific research through carefully planned experiments (Ref. 07, mirroring the academic view of the needed “contextual” or “actualistic” dimensions of experimenting in archaeology, as it was discussed above in Chapter 2- Rasmussen 2007, Outram 2008).

The purely educational and teaching aspects were identified as being important as the output of the activities themselves. This particular point of view was expressed in most of the respondents’ replies to the question, with the substance of the responses informed according to the role in which the respondent was acting during the activities. In general, there are two levels from which this theme emerged. At a more general level, reflections about past versus present were articulated in all the categories:

- Self-reflection: the attribution of positivity towards the present vs the past, or the opposite way around. From one point of view, life today is easier thanks to technology when compared to what might have been in the past. On the other hand, people who lived in the past seem to have possessed problem-solving

intelligence and skills (technological, craft, and transversal social skills such as leadership and teamworking) which are almost forgotten and lost today. Either way, the link with the past is strengthened through a common feeling, and usually admiration and communion are felt with those who preceded us. The development of this theme (fruit of the second level coding) will be crucial to the analysis of the narratives and hermeneutics used (see below).

- Output: with regard to the public, some respondents clearly indicated the need to *“deconstruct what they think history is”* (ref. 09) and the way in which experimental archaeology activities in AOAMs can also show the drawbacks and difficulties, the failures and the shortcomings of a particular content of the activity. The unveiled complexity of past activities allows the public to deepen the understanding of concepts which were possibly taken for granted before this experience. This is also an important aspect of the free, direct interaction of the public with the participants: questions are spontaneous and genuine curiosity can greatly enhance public education in terms of specific topics or phases of the work which they can see “live”.

Finally, the educational mission of some of the activities were seen in terms of more structured, higher-educational schematic thinking. From this perspective, activities were seen in terms of the passing on of information and embodied knowledge, both regarding primarily through the actuality of the interaction human/nature/resources/raw materials, and in terms of the skillset needed to transform those materials into artefacts, informed by the comparison with the archaeological record. Secondly, long-term teaching activities in contexts such as an AOAM were felt as a potential, specifically because of the ease of involving the students in the application of practical knowledge, as previously highlighted (Ref. 04).

5.2.5 Scale

The scale of the activity and participation was highlighted as an important aspect for further investigation, as it can give practical indications about the optimum ratio across instructors and participants in similar activities.

Even so, it must be pointed out that the major variable to be acknowledged in this area is the level of engagement of the activity itself. It might sound obvious, but all the respondents had very clear ideas about what ratios are considered to be working well, informed by their role in the activities itself. Participants tend to prefer a higher ratio of instructors to participants, such as 1:2, as this allows them to receive more attention and care in all the phases of the chosen activity. Instructors, on the other hand, differentiated their preferences to scales from 1:6 to 1:20 and performers stated that they can handle ratios up to 1:50, when the “participants” are just observing the activity, or their engagement is solely passive. When dealing with more than 10 active participants, some instructors used some method of group break down, delegating certain tasks on a rotating basis, in order to keep the group equally involved in all the phases of the activities. When this was not possible because of the nature of the activity, it was seen as necessary to have two instructors to ease the pressure and allow all the participants to benefit from a more balanced engagement (Refs. 01, 02, 03, 04, 06, 07, 08, 09, 10, 11).

In general, in the case of a highly engaging activity in which the participants are each performing physical actions during the whole process as a means to acquire a specific skillset, a bigger ratio of participants to instructors is preferable. However, it might not be possible to improve upon a 1:5-1:6 ratio for financial reasons, which, in the kind of setting described above, was perceived as the optimum compromise. If the numbers are higher than ten participants, either a rotational adaptation to the processes or a doubling of the instructors seems to be the better solution. If the participation is limited to specific tasks within the overall process, end “product” or role-playing, as long as the activity is carefully planned and the instructors/demonstrators have developed improvisation skills, the ratio of instructors to participants can diminish. Depending upon to the needed workforce

necessary to perform a specific activity, splitting groups and assigning just one of the steps to them is possible, although it requires greater adaptability on the part of the instructors.

5.2.6 Success parameters

In the attempt to gather more information on what defines an experimental archaeology activity as successful within the AOAMs setting, responses to this question revealed interesting insights, both from a reflexive perspective and in a more practical sense. It is felt that, considered together, these aspects of defining success will be useful to take into account when designing any internal evaluation tool to monitor the quality of the activities themselves. Also, the gathering of information across all the categories of respondents (the axial strategy used in the research) returned some important perspectives which, when considered as a whole, considerably enhance the potential for structuring an internal evaluation tool that will effectively encompass all the categories involved. It seems, therefore, to be necessary to consider feedback from museum staff, instructors, participants, and the public (see below 6.4). For the latter, this was not possible during the limited pilot study, although one attempt was made through the anonymous questionnaire mentioned at the beginning of this Chapter (see Appendix n. 5)

Seen from a research perspective, the most important aspect of responses to this question was the highlighting of unmeasurable, qualitative values, explicitly stated by most respondents as “parameters” for success. Below is a concise table summarizing the results from all of the interviews (Refs. 01-11):

It must be noted that since the semi-structured interview protocol allowed those interviewed to freely interpret the intent of the question, most of the respondents gave replies with content related to some other categories, the exceptions being those from participants (Students) and Archaeologists. These two categories chose a self-reflective assessment for success, even if their parameters may have practical application from an AOAM perspective. Museum Staff and Instructors generally were relying on the reactions

of either the public or the participants in the activity as a means for determining the parameters for success.

Success parameters	Means to access parameters	Qualitative aspects	Potentially measurable aspects
Museum operators	<ul style="list-style-type: none"> • Personal contact 	<ul style="list-style-type: none"> • Personal satisfaction (“a smile on their faces”) • Balance between desired engagement and actual engagement • Actual engagement 	<ul style="list-style-type: none"> • Want to do more • Returning to the activity and/or venue • Learning outcomes
Instructors (experimental archaeologists)	<ul style="list-style-type: none"> • students’ learning assessment • Progress assessment in students’ learning • Personal interaction 	<ul style="list-style-type: none"> • Personal satisfaction • Ability to express what was learned • Contributing to the dynamic 	<ul style="list-style-type: none"> • Wanting to do more experimental archaeology • “successful” outcome of the experiments (artefacts or processes)
Archaeologists – self-reflective statement	<ul style="list-style-type: none"> • Later professional activity 	<ul style="list-style-type: none"> • Improvement in field archaeology practice 	<ul style="list-style-type: none"> • New projects or larger projects stemming from the experience
Participants – self-reflective statement	<ul style="list-style-type: none"> • self-evaluation 	<ul style="list-style-type: none"> • endurance of good memories • enjoying the whole experience 	<ul style="list-style-type: none"> • wanting to do more • skills acquired • increase in interest in related fields

In designing activities such as those investigated in this pilot study, it would be advisable to include in any evaluation tool some of the key themes included in this brief description. Some of the potentially measurable parameters of success might not actually be recorded within the activity itself, but they could be included in a long-term research

project to monitor developments in subsequent years. On the other hand, the parameters used to evaluate the success of the learning outcomes, for both participants and the public, could benefit from an evaluation tool that monitors their progress (before and after the activity). Finally, although it is not the objective of this pilot study to become normative, it is nevertheless interesting that the technological “success” of the experimental process, in the form of an artifact produced, was considered to be a parameter for measuring success from the point of view of the instructors but was not present in the students’ perspective. Students, as a matter of fact, placed a greater significance on the skills acquired rather than in the material, technological success of the activity (fig. 5. 8).



Figure 5.8 Craggaunowen. Crucible for bronze casting sitting in the fire. Photo by author, 12th July 2019.

5.2.7 Potential for involving the public in research.

The last question was intended to probe the opportunity of a possible involvement of the public in AOAMs experimental archaeology activities, albeit not only in the re-enactment of already understood ancient processes or skills, but also in the actual process of fresh inquiry regarding those skills or other archaeology interpretative problems. Although the strategy of leaving the questions open to free interpretation was successful in other themes, from the responses to this question it became apparent that more specific information in the question would have been valuable. The responses seemed indicative of a mainstream general unawareness of scientific literacy, which was intended as yet another transversal skill involved in experimental archaeology (see Chapter 2).

All the respondents embraced the need for communication, i.e., in a sense purely of “outreach” purpose. Despite describing a wide array of possibilities and successful strategies, it must be noted that the perspectives of all respondents were narrowly focussed on promotional activity aimed at attracting new “customers” or, in the best possible outcome, potential funders. This viewpoint must not be considered cynical or shallow. As some interviewees have pointed out, the major retrocession of the archaeological profession in the public eye, and the consequent emergency strategies needed to perform their activities (in order to sustain a living) has led them to embrace the “trend” for experimental archaeology (Ref. 03). On the other hand, the exaggerated commercial purpose and “quick business” approach tends to completely ignore the potential for real research across all categories.

In some instances, the respondents highlighted the storytelling techniques that can be used while observing an experimental archaeology activity as a means to engage the public and link their experience with concepts about the past, either geo-chronologically or in general (Refs 02, 07, 09, 08). Others specified the “documentation” purpose of the activities themselves, although that recording was not, in these instances, used for research purposes (which, must be noted, could nevertheless be extracted from the recorded material) but for producing promotional snapshots to be shared on social media for marketing purposes (Refs 02, 07, 08). Very few respondents envisioned aspects of the

potential benefit of involving the public in some parts of the activities themselves, even though they were very aware of the difficulties in sharing the finer details of the research process (Refs. 04, 10, 11). Museum Staff referred to “hands on activities” as a major way to involve public of all ages, identifying this as a very successful and equanimous strategy to benefit the public, but no referral was made to the research potential (Refs. 05, 06, 09).

The most important themes arising from the answers to this question were identified explicitly by the respondents as education and promotion only.

The results of the analysis of the responses to the question about participatory research potential in AOAMs highlight some points that can be taken into consideration as actions to be taken to start preparing the field for actual Citizen Science. Evaluating the opportunity for a deeper involvement of the public in AOAMs through experimental archaeology research activities involves acquiring information on some key issues highlighted by the gaps present in the responses above. The key actions that were indicated from this question in terms of optimising public engagement in experimental activities in AOAMs were:

1. Assert the potential presence of experimental archaeology research activities in AOAMs
2. Clarify the aspect of scientific literacy involved in experimental archaeology at a general level, considered as a transversal skill
3. Perform training on participatory research and Citizen Science aspects across all the categories involved
4. Consider long term projects vs short activities (compare the possibility of involving the public in a one-time experience or a longer project)
5. Enlarge the documentation strategy on the research process and use that too, adequately edited, as promotional material for the museum

Only if these actions could be performed on the field, the re-structuring of the activities themselves could evolve into Citizen Science. Ideally, the above points would have provided the information needed to strategize the planned multiple case study

fieldwork for the summer of 2020 in European AOAMs. The impossibility to perform the following step of the study has halted any further advancement in this respect.

5.3 Conceptual Analysis Results (second level coding)

In this section, the second level analysis of textual data will be illustrated in a concise format. The concepts which emerged from the primary level, purely descriptive coding, have been highlighted across the sources. This kind of analysis allows some deeper themes to emerge. These are intrinsically and transversally embedded in the conceptual framework that emerged from the totality of the responses. In other terms, a more general theme could be seen emerging from the analysis, in a more “longitudinal way”, across all sources, and regardless of the content of the research questions or the interview questions. These concepts (or themes) are like the roots from which all the responses have taken form (Saldaña 2016 p. 15-16). The report will attempt to show them in logical sequence, highlighting the issues. Nonetheless, it must be noted that the themes were strictly connected and interrelated, giving some coded text remarkable coding density.

5.3.1 Knowledge exchange

The concept of knowledge exchange was illustrated by most of the respondents in different perspectives. In general, knowledge exchange seems to exceed expectations which might have been considered limited to the gaining of knowledge and skills of the activities by the trainees (Students). Knowledge exchange in fact, happens among all categories of people included in the activities and also has important consequences for the public. The respondents highlighted their own perspectives on the topic as shown in the codes above: knowledge exchange is always present in association with the positive aspects of experimental archaeology activities. The transference of knowledge is not only limited to the contents and specifics of the activity itself, but bridges different areas of

knowledge and different eras. It bridges the categories of people involved by dialogue which can happen either through embodied knowledge (and in this case highlighting the “visual” aspect of experimental archaeology and the potential hands-on participation by the public) or through the actual engagement in conversational exchange (this being either question and answer or direct involvement in roleplaying). This exchange is experienced as “unconventional”, moving out of the written word as a traditional means to education and, most importantly, a more effective transfer of knowledge.

This transversal theme was articulated by the respondents in different ways. As above in the “added value” code, within the theme of the “new story”, some respondents focussed on the contrast-comparison between the past and the present as a main area of potential insight for the visitors and within their inner reflexivity⁶.

5.3.2 “Our Ancestors” narrative.

Following the knowledge exchange theme, one specific narrative utilized to convey the link with the presented “past” emerged across most of the sources, that of “our ancestors”. The ancestral link with specific national history and archaeology was explicit many times among most of the respondent’s categories including Museum Staff (using it with the public) and the instructors themselves, with an important exception: it was not present in the Students’ interviews. In one case this discourse stemmed a reflection on a perceived contrast with “academics” who allegedly “*divorce themselves from these emotional connections*” and with reclaiming the importance of this aspect, which veils an occult “*deeper need*” to perform experimental archaeology activities within AOAMs (Ref. 08). This perspective might reflect the apparent dichotomy existing between the theoretical “strands” of experimental archaeology as observed and outlined in Chapter 2 and will be discussed below in the research potential’s perspective in Chapter 6. This “deeper” and emotional aspect, however, is very present, attested, and explicit in many activities in AOAMs across Europe, some of which are official events open to the public and sometimes performed together with religious, cultural groups, political authorities of all kinds⁷.

Most of the respondents were not aware of the limits and implicit issues which a narrative which focuses on a limited notion of “our ancestors” has in terms of social responsibility and inclusion themes, let alone the political issues embedded in its misuse, which is strongly felt in other areas of Europe where the use of national identity in heritage communication is a conscious issue (see Chapter 2). This theme is relevant to the core issue of this work and links the reflection to the need to acquire awareness and deeper understanding of themes such as national identity (“our ancestors”) and elitism (“academics”).

The “*deeper need*”, the emotional connection to those who have lived in a particular part of the country, of a nation or of a continent or island, as it has been described in relation to all the categories of people involved, is more explicit than it might seem within the remits of experimental archaeology activities in AOAMs across Europe, but its narrative can and possibly must shift to a more inclusive and less exclusive expression, such as the one given by one of the respondents:

[...] it is something that everyone can be interested in - like it is the human past - so it is connected to everybody, so it is important to know about it and hear about it so the more we can do that to facilitate them the better.

Ref. 10

5.3.3 Resources as a medium

Most of the respondents pointed out how, in the specific context of application, i.e. within an AOAM, the contact with natural resources and human resources in the form of skills, was one of the most important external assets for the experimental archaeology activity. This might seem as a straightforward observation but the ways in which the relationship with resources was articulated by the respondents highlights some interesting threads which underlie the background concept of resources as mediums for different

outcomes. In this perspective, therefore, it is useful to list some of the most relevant attitudes towards resources which the respondents have returned in their interviews.

The contact with material resources allows primarily the development of the educational mandate, i.e., that of “returning” the attention to the relationship between humans and their environment. This is sometimes linked with the attempt to overcome our over-industrialized present by, for example, connecting an artefact with the raw material present in the environment. In the spectrum of ancient technology demonstration, this holds a prominent role in the responses. The skillset that is already present in the AOAM, then, enriches the experience of the interaction with resources by allowing the participants to access craftspeople and their knowledge directly on the spot. Sustainability was also a major aspect of the transversal meaning of this concept. Working with materials which the natural setting can provide was felt as an “*artistic ethos*” within all the activities in the museum (Ref. 09).

Another “negative” aspect is that of problem-solving attitudes: the difficulties in facing logistic issues when trying to access natural resources and the “*sense of a chaotic nature*” (Ref. 11) were felt as challenging aspects, which participants can reflect upon both on the present and the past while practically attempting to solve those difficulties.

5.3.4 Empowering people

Following from the previous concept, the purpose (or inevitable outcome) of having experimental archaeology activities within AOAMs is that it allows both participants and visitors to get closer to a more human and pro-active approach to material culture and society. The potential for visitors and participants to be inspired, even beyond the acquired technical skills, to continue practicing what they have seen and learnt is multiplied by the presence of “hands on” activities or involvement strategies. When considering empowerment, it is not only technical or technological skills that are referred to (aided by acknowledging natural resources as a direct mean), it includes teamwork activities (like building a Mesolithic inspired vegetable shelter for taking cover from the rain as a joint

effort – Ref. 02), but also the interest stirred in the visitors and participants alike to extend their knowledge regarding either a specific time frame in history or archaeology or a particular craft in an independent way. In fact, the very act of practicing whatever aspect of the above-mentioned activities, either technological or craft, or transversal in matter of collaboration with others, opens new potential in individual experience even out of the museum grounds:

People had so much knowledge that might have been lost by now. And it just opens everybody's eyes. If it makes just one person just a little bit more interested in the whole story of life in the past, I think that's great. It gives ideas to think about.

Ref. 06

This is not to say that the visitors or participants will abandon the “nest” of the AOAM in the future: all the contrary. Once the experience has been established within the museum setting, they will tend to consider it as a point of reference for both the technological-craft aspect and the relevant educational endeavours on transversal social skills:

And when people are involved in an activity like that, it just picks their interest and they want to come back again, they want to hang out more, so it is great.

Ref. 02



Figure 5.9 INHP. Experimental archaeology activities in the open air. Photo by author, 25th June 2019.

5.3.5 Visual means

Finally, the concept of experimental archaeology activities, as primarily linked with visual means of communication, was stressed many times especially in association with the participatory potential of the activities. Even though all the senses are involved in the experimental archaeology activities or ancient technology demonstrations used as attractions within the AOAMs and were mentioned in the interviews (the most important ones cited by the respondents are sight, touch, and taste), the “visual aspect” of experimental archaeology was the most attested.

To see something actually being created and to follow the process, not just talking about it, because when you see things, you can follow it and it makes a lot of difference.

Ref. 05

The gerund “seeing” was used extensively in relation to what the visitors experience when an experimental archaeology activity is performed within an AOAM but also to the use of captured visual media in wider outreach and promotional activities. Videos and pictures were the most cited ways in relation to the communication aims:

There has to be an element of seeing people learning

Ref. 02

Visual observation is also mentioned in the recognition of the archaeological patterns which an experimental archaeology activity can return to the excavation grounds, therefore connecting with primary data retrieval (Ref. 03).

If there are other experimental archaeology people out there, they'll see it, they'll know it.

Ref. 08

The visual aspect of experimental archaeology presents itself as a powerful tool for communication, either “live” in the context of an AOAM or “out there” as a communication mean. The interesting point of this concept is that the message which can be conveyed through visual means, i.e., video or photo, is multi-layered: it can be a promotional video for the museum while being of interest to both archaeologists and experimental archaeologists alike.

The research potential or the experiment recording potential seems to be absent in all the observations gathered during the research in Ireland: the promotional aspect overwhelmed any other potential in this sort of communication. Another aspect which has emerged during the analysis of the state of the art on the field of heritage communication and that was mentioned briefly in the second Chapter, is that of the power of archetypal images which experimental archaeology seem to hold on the collective psyche. This theme was not present in the reflections of the interviews and remains to be studied especially in the consequence on the collective.

¹ This lack is particularly heavy, since the category of volunteers had been subject to some analysis by EXARC in the recent years with particularly interesting outcomes (Spencer 2016).

² The impact of such a critical praxis could have been assessed with the evaluation of the inreach impact, but only with the research protocol as originally designed, i.e. with the comparison of the results of two different interviews, one before and one after the activity and the interaction with the PI herself. This was unfortunately impossible to perform, although some observations regarding the development of the activities within the individual AOAMs seem to suggest some form of change has occurred within those contexts.

³ According to Saldaña's definitions (2016, p. 97), only elemental coding was performed on the textual data. In other terms “codes” were attributed to parts of sentences in the textual data in order to analyse the content. The first cycle of coding was done utilizing the questions as categories, i.e. mainly and purely to develop and illustrate a descriptive analysis (“descriptive coding”, Saldaña 2016, pp. 102-105). The

second and last cycle of coding was instead performed in a cross-category way, distilling the thematic concepts which emerged regardless of the descriptive content (Saldaña 2016: axial coding, p. 244-245). See paragraph 5.3 for the latter.

⁴ The term “node” here refers to the label used within the software used to organize the coding activity, and it corresponds to the so called “code” in Social Science qualitative analysis. In Saldaña’s words, a code is “[...] most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data” (Saldaña 2016 p. 4).

⁵ This concept seems similar to the one of “pastness” observed by Holtorf regarding the experience the visitors would have in Lejre (Holtorf 2014 p. 787). Holtorf’s discussion, although based on constructivism and thus rather distant from this thesis, is particularly interesting regarding the concept of pastness and authenticity (Holtorf 2013).

⁶ This concept of knowledge transmission and knowledge exchange has already been highlighted by experimental archaeologists for lithic technology skills exchange and learning process: Torres Navas & Baena Preysler 2014.

⁷ See one example in the inauguration of the Viking Hall in Lejre with the presence of her Majesty the Queen Margrethe II of Denmark: EXARC news Lejre 2020.

6

Experimental Archaeology in Archaeological Open-Air Museums. Elements for a Best Practice Model. A critique of dichotomy.

6.1 Introduction

Concluding this work is more an attempt at fixing a point in time and assessing the work done so far, rather than actually meeting the goal originally intended. As already mentioned, diverse obstacles, internal and external to the research setting, prevented this study from concluding all the steps necessary to produce the outcome originally anticipated - a best practice model to be utilized and tested on the ground. Instead, the combination of limitations that existed both within the academic setting and restrictions necessitated by the Covid19 Pandemic determined a decisive turn towards more theoretical outcomes.

As was previously illustrated in Chapter 2, there are major traits that connote the use of experimental archaeology which veil important ethical issues. Firstly, the ethical

standpoint regarding societal considerations. The misuse of biased interpretations of the past has been highlighted in the roles they played in historic examples, and as the danger of unprocessed ideologies being fed to the general public (paragraphs 2.3.4, 2.3.5, 2.4.1; Singapore Statement for Research Integrity 2010, point 14). Secondly, from a purely research perspective, the issue of research integrity within the forms of inquiry generally performed in experimental archaeology practices, remains a hindrance to its credibility and renders it a questionable research practice, as defined by the Singapore Statement for Research Integrity (2010, points 3, 5, 7, 9, 10; paragraph 2.4.1) and as evidenced in the results of the online survey (see above Chapter 4).

Put another way, the complexity of experimental research in archaeology tends to bring together threads belonging to different disciplines, and it has as a unique asset in the active use of human agency in the present to “fill the gap” of past human agency, which is absent. By shifting the perspective to a philosophical level, the reasoning developed in this thesis dealt with clarifying that the archaeological record is not the cause of the society which produced it in “alliance” with time and physical alteration but is merely the (highly fragmented and degraded) product of past agency which is now only accessible to us through interpretation and experimentation. The absence of the primary object of research is a fact that must also be clearly understood in the core discipline of Archaeology itself. Adopting some perspectives from the philosophy of Roy Bhaskar, greatly helped in locating ontological and epistemological issues within this setting (paragraph 3.5). Therefore, the main critique of the practice of experimental archaeology was directed towards the abuse of uniformitarianism within its remit in an unaware way. Secondly, it was addressing the lack of proper methodologies, tailored to the intrinsic characteristics of the object(s) of research.

In this chapter, the summary and extract of the most important insights and results gained through the work will preface the final reflections on the exploration which was undertaken during the last 4 years.

6.2 Theoretical results. Loosening an epistemological knot and critiquing dichotomic thinking.

Although the primary assumption of this work was that to do research is the fundamental aim of experimental archaeology (paragraph 2.1), the analysis of existing theoretical stances within the scholarly field highlighted a rather chaotic and indeterminate situation (paragraph 2.2). Instead of being able to dive into the applications and the potential in both Academia and AOAMs as detected fieldworks between which a dialogue would have been woven, the research had to tackle the underlying issues from a theoretical point of view primarily in the academic context.

The state of the current academic debate on experimental archaeology, split between two uncommunicating paradigm-purists and the heavily fragmented practice on the field by the other subjects involved in the dynamic, drove this study towards seeking for a strong internal validity via a comparative methodological study between experimental archaeology and the social sciences. Furthermore, the detection of critical social science as one of the best fitting theoretical frameworks within the remits of experimental archaeology is unprecedented at a theoretical level.

To avoid compromising internal validity and to further strengthen the philosophical asset of this work, an internal philosophical and epistemological framework was shaped. To do so, a re-assessment of archaeology as a whole was needed, and an attempt has indeed been made to shape a “grand theory” for the discipline itself (see Chapter 3). This is not meant to impose a view on the discipline, it must be repeated, but to clarify the structure upon which this work is reflecting. The structure identified here has been shaped through epistemological triangulation, directed to *position* experimental archaeology. The triangulation explored approaches from the perspectives of the hard sciences, the social sciences (including archaeology and its “humanistic” side), and the life sciences (Lawrence Neuman 2011, pp. 166-167; Yin 2018, p. 128). Epistemological boundaries, though, are soft boundaries and the overlap among the perspectives analysed can profit from some life sciences definitions as metaphors. The resultant emerging “epistemological map” is an organic, interrelated and complex system (fig. 6. 1).

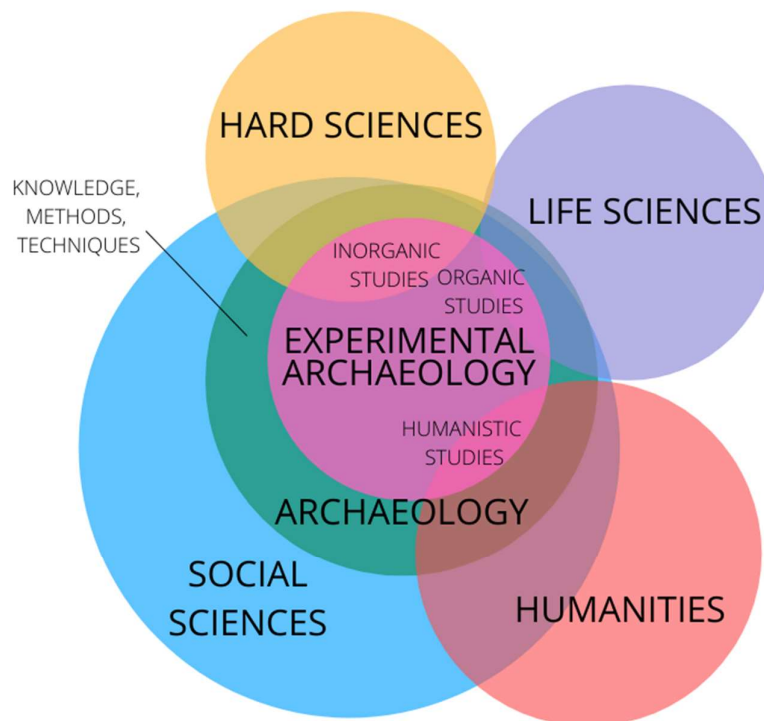


Figure 6.1 Results of the Epistemological Triangulation. The soft boundaries of Experimental Archaeology.

Experimental archaeology has been considered to be an integral part of archaeology itself and within the remits of the social sciences (paragraph 3.2). As was observed earlier, archaeology seems to be utilizing diverse knowledge bases, methods and techniques derived from other fields, such as the humanities and sciences. The principal characteristic of archaeology, therefore, does not lay in the use of particular methods, techniques or knowledge, but is placed upon its primary object of research, i.e., simplifying, “The Past”, in the form of material and organic remains as the product of past societies. This is another unprecedented shift in perspective on the theoretical field of archaeology: recognising the value of a pragmatic view: the disciplines are considered in terms of the nature of the data under scrutiny and, most importantly, on the ultimate object of research.

In this way the archaeological record is ontologically placed as *a product* of the real object of inquiry, which involves the society and culture that produced it. The awareness

of this ontological (and subsequently epistemological) differentiation between what the archaeologists actually study (the material remains of past societies) and the agency which produced them (the past societies themselves) has proven to have a fundamental impact on the overall development of research, as well as on the public understanding of it (Hurcombe 2007, p. 1). The ontological absence of the ultimate object of enquiry in archaeology cannot be dismissed or bypassed by abusing the uniformitarian assumption without proper consideration: interpretation remains the necessary tool for inference about past human agency and societal structures (see Chapter 3).

Experimental archaeology borrows knowledge, methods, and techniques in the same way as archaeology does, but since its efforts imply the re-creation of past human agency, “the Great Absent¹” of archaeology, it imports more frequently and deeply from humanistic, rather than only from organic and inorganic scientific studies. The active role of the researcher, or the collaboration with specialists within the remits of experimental archaeology, is what primarily differentiates it from traditional archaeology, and is also what increases the social responsibilities of the actions of its practitioners (see fig. 3. 2). It also highlights the social role of such a research process, which brings together research on the deep past and the renaissance of ancient crafts and practical knowledge. It is a process that can also make important societal contributions in the form of “Applied Experimental Archaeology”, as was already indicated in the results of the online survey (see Chapter 4).

As has been noted, this connotes experimental archaeology as an epistemological hybrid, which utilizes both the “traditional” tools of science (analysis primarily, and subsequently experimenting and collecting) *and* the humanities; both the dynamic interrogations of social science and the transference of knowledge in the present. In so doing, experimental archaeology is tearing down all the hard boundaries that are the product of to the troublesome issue of demarcation between science and pseudo-science².

This is what has emerged from the epistemological triangulation directed at the assessment of the nature of experimental archaeology: both quantitative, scientific inquiry methods and qualitative, social science methods (as well as the arts and the creative endeavours, as we have seen in the methodological comparative study – paragraph 3.3.1 -

and the fruitful dialogue with craftspeople – Chapter 4) are used in its practice, in a proper “crucible” of experiences and traditions, mixed as well as with fresh perspectives and newly arising issues. In other words, it would not only be a fallacy to believe that experimental archaeology deals with processualist or post-processualist inquiry, but it would also be damaging, as the object of research, which includes both human agency and the material record, intrinsically links the two extreme ends of the theoretical polarity, as is acknowledged in the pragmatic perspective. The same seems to be true when we consider the ontological distance and the time variable as a causal force to which archaeology as a whole is subject (see paragraph 3.5.1).

The use of dichotomic paradigms and hard boundaries has not proven useful in the academic debate and has prevented experimental archaeologists coming to terms with the pressing issue of social responsibility and societal considerations, essential standpoints from a research integrity point of view. This is especially so because experimental archaeologists are interacting directly with the public within the remits of AOAMs and academic institutions during public events (see Chapter 4).

To overcome this apparent dichotomy, this thesis proposes an integration of methods within the remits of the discipline of experimental archaeology, and a re-assessment of the hard boundaries between experimental categories.

Starting with the latter, experiments in archaeology can have diverse characteristics, and have already been the object of systematization by the numerous scholars quoted in Chapter 2. Instead of using a hard boundary and an exclusive definition, it is more useful to identify typologies of experiments in archaeology as part of a spectrum scale, going from the less controlled (open systems, open air, experiential process) to the most controlled ones (closed systems – laboratories, full control of the variables and their interactions) (see Romeo Pitone & Gaiaschi 2020, pp. 353-356). In the middle of this schematic representation, we can place the so called “actualistic experiments”, drawing from Outram’s definition (2008, p. 2), and the already discussed “contextual experiments” in Rasmussen’s definition (2007, p. 11). In both, the variables are monitored - and possibly evaluated - in an open system, and either have already been tested in a laboratory setting (actualistic experiments) or might be tested later on (contextual experiments).

The spectrum of experiments in archaeology

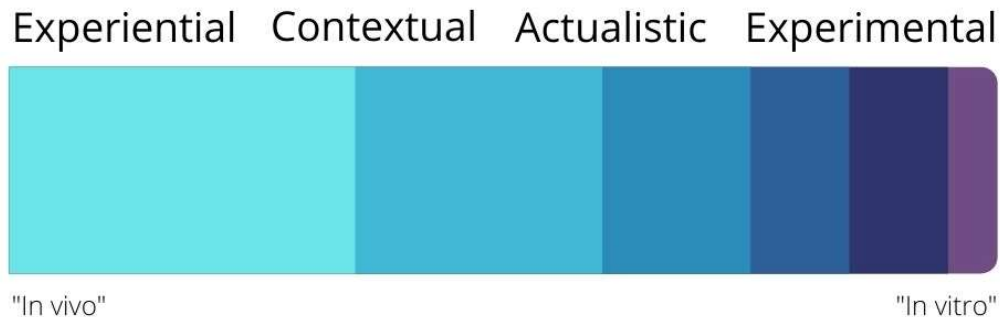


Figure 6.2 The Spectrum of Experiments in Experimental Research in Archaeology.

This spectrum (fig. 6. 2) is idealised and put in an ordered progression from the less controlled (*in vivo*) to the most controlled environments (*in vitro* – adopting the life sciences’ metaphor: Strasser 2019), although it has already been acknowledged that this linearity is not mandatory, and passages of refinement can lead either to a more controlled setting, or “revert back” to the purely open system (Outram 2008 p. 2). The different gradients are representing the reality of the practice of experimental archaeology, which tends to make great use of experiential trials and actualistic or contextual experiments where human agency is one of the actual “variables” under scrutiny, and rarely uses de-humanised laboratory experiments when the variable of human agency has been eliminated from the hypothesis undergoing the process of experimental falsification.

It must be pointed out that this spectrum of experimental activities is also bridging the three levels of reality as conceived by Bhaskar in his model of stratified reality. That is, it sets on a linear scale the “real”, the “actual” and the “empirical” from an ontological level. It also highlights the interconnectedness of the *critical difference* across the spectrum: from an open system in a socially “alive” environment (such as the one in which the

experimental archaeologist is either engaged in a research endeavour or is illustrating it with the co-participation of the public) and the closed environment in which causal laws can actually be tested within the remits of a closed system (such as the laboratory environments in which experimental archaeologists are dealing with the causal laws of physical reality, without the inclusion of human agency as a subject of research; see above 3.4).

Nonetheless, it must be stressed that, according to the Singapore Statement for Research Integrity, the experiential side of this process can only rarely be included in what is accepted as Scientific Research. This is not to say that all experiential or actualistic experiments in archaeology are questionable research practices, but they might be better framed methodologically into a process of refinement that does not exclude any of the passages among the categories of experiments on the spectrum. A process which, instead, focuses on the deep understanding of the specific differences between them. This would also aid experimental archaeologists in acknowledging the difference between “facts” and “findings” and to discriminate between opinions and interpretations (Singapore statement for research integrity 2010, points 3 and 4).

As observed in the results of the online survey, the agents involved with experimental archaeology activities are sufficiently aware of the difference which exists between the actual investigation and the communication of results (see Chapter 4). Even if the boundaries between research and communication remain as yet another “soft” boundary in experimental archaeology practice, it was interesting to see how clearly activities that can be classified within the category of “ancient technology demonstrations” actually produced the most stable conceptual map within the survey results, and could be included in the first step of the experimental research process in archaeology as both a starting point *and* an output for communication (see paragraph 4.6).

The most relevant discovery of this triangulated epistemological observation, the objective of which was to locate the exact position of experimental archaeology, pointed towards a very important epistemological discourse that finds its most apt definition, in my opinion, in the “ways of knowing” as used in the history of the life sciences by Strasser (2019, pp. 16-17). In this respect, yet another critique of dichotomic thinking was inferred

through the criticism of the use of either/or hard boundary between the inductive and deductive reasoning processes and their unclear associations with processual or post processual theories in archaeology. Moreover, an overreliance on analogy as the primary “tool” in archaeology has bypassed altogether any reflection upon deductive or inductive reasoning processes, blurring yet more profoundly the rational procedure underlying archaeology as a whole.

The shift from the simplistic use of “analogy”, or blurrily defined inductive/deductive reasonings, to a more complex “way of knowing” that includes awareness of the positionality of the researcher and the issues of their ethical and social responsibility, and moves towards a more clearly defined “retroduction” or abduction iterative, cyclical processes involved in the interpretation of the archaeological record, borrowing from some of Roy Bhaskar’s reflections, could significantly improve the logical rationality within the setting of archaeology and experimental archaeology alike. This thesis argues that retroductional reasoning processes were already part of the logical tools of archaeology itself but are more evident in experimental archaeology, where the knowledge gap that is addressed in the experimental inquiry is gradually diminished by a constant and repeated refinement and re-evaluation of both primary data (facts) and secondary interpretations (findings).

6.3 Methodological results – integrating methods and using Case Study methodology.

As we have seen, the use of the “pragmatic turn” as the primary shift in perspective in the direction of this study, has led to experimental archaeology being considered through the lens of the nature of data under scrutiny. As a result, it has become clear that experimental archaeology is dealing with both quantitative (and therefore measurable, subject to the laws of both organic and inorganic sciences) and qualitative (and therefore non-measurable, subject to qualitative forms of analysis) data at the same time. Setting

aside the demarcation issue for the moment, it is more useful to direct the attention towards how these two characteristics of data can be treated during the research inquiry. Now, considering that the quantitative aspects of data have already been intensely analysed and adequate tools of inquiry have been developed in the course of scientific advancements, it is the qualitative aspect of data which, in archaeology and experimental archaeology alike, has not been subject to a structured systematization of the epistemological toolkit required to assess and interpret the archaeological record. Even if some analyses in archaeology are using, *de facto*, qualitative analysis procedures, it is rarely made explicit what kind of methodology, and more importantly, what kind of theoretical frameworks are used to assess the archaeological record³. This aspect is crucial, because it is in the shift from the material, measurable and scientifically analysable material record from the past to what the society which produced that material record was actually like that the qualitative, evaluative, and ultimately interpretative contribution is ontologically and epistemologically fundamental. As was noted in Chapter 3, the interpretational frameworks which allow archaeologists to draw some inference about the society from its material remains, the habits, the beliefs, and the behaviour of past societies, are neither stated or the object of any critique or self-reflective statement⁴.

In experimental archaeology this is even more relevant, as the shift from a limited experimental process on a small, fragmented, and degraded sample of the material record of the past to any sort of assertion about any aspect of the society which produced it is more clearly evident, and arguable, from the perspective of research integrity. The abuse of the post-structural turn within some of the currents of “humanistic” experimental archaeology is exposing an epistemic fallacy, as delineated in the work of Bhaskar and Wallace (see paragraphs 3.4, 3.5). This is not to say that contemporary human agency or motive is not relevant to the experimental research process in archaeology, rather, that it indicates that it needs to be framed within an adequate structure of analysis, one which provides space for the acknowledgement of the inevitable biases to which the process is intrinsically subject.

As the so called “processual” approach was adopted to put into good use all of the available scientific tools in order to analyse and investigate material data, the schematic

representation given in this thesis on the application of the experimental tool within an archaeological research endeavour can be of benefit when applied to investigation of the properties and characteristics of primary material data (see fig. 3. 3). In other words, the very nature of the material record cannot be ignored or simply dismissed, even if we use a “humanistic” approach to the object of inquiry. The properties of the material record itself, when considered in terms of their nature, cannot be elided by our “interpretation”, but both material data and interpretations need to be acknowledged at their own epistemological (and of course ontological) level. This is yet another situation which can benefit from the philosophy of Roy Bhaskar, who sagely pointed out that both the “idea” of the properties of a magnet and the measurable magnet itself are part of the scientific process, and yet possess different characteristics (see paragraph 3.4.1). Translating this reasoning to archaeology, we could say that both the material record *and* its interpretations, or hypotheses, are the subjects of archaeology, albeit they possess strikingly different ontological and epistemological natures. But it is also true that contemporary human agency, as employed in experimental archaeology, has to be taken into serious consideration within the research process.

The following scheme (fig. 6. 3), as it was originally proposed by Mannoni and Giannichedda (1996) regarding artefact analysis, i.e. the study of the material remains which archaeologists collect and record during their primary data gathering, attempted to bridge the physical, measurable aspects of the material record in archaeology with hypotheses about the function, production and post-depositional processes, each of which are elements connected with human agency and which need, today, the input of contemporary humans’ agency in any attempts at reproducing the processes under scrutiny.

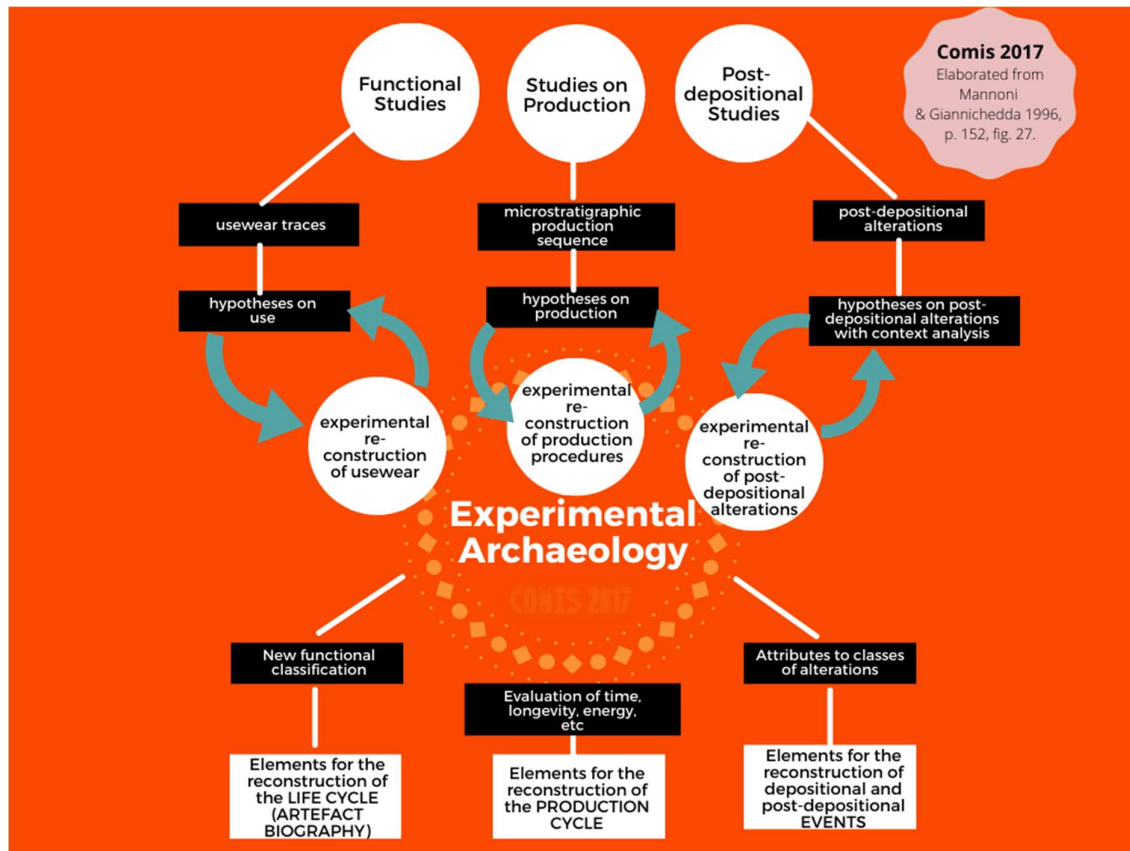


Figure 6.3 Processual Scheme for Experimental Archaeology, second version.

The structure, heavily processual, highlights the dynamic role of experimental archaeology within the process itself, the continuous refinement of hypotheses through the experimental process and, as already acknowledged by Mathieu (2002), the *generation of new hypotheses* during the research process (see paragraphs 2.2.1 and the results of the online survey in paragraphs 4.4, 4.5 and 4.6).

What is missing here is only the equal consideration of the “Great Absent” in the form of human agency in the present, i.e., the agency of researchers themselves, something which was previously thought to be valueless and damaging to scientific inquiry, the latter being solely attributed to the quantitative aspects of analysis. Instead, if we also consider the qualitative aspects, not only as applied to the material remains (which archaeology already does), but also to the human agency implicit in the replication of past processes, the structure of inquiry could then move towards a more comprehensive model by

integrating the post-processual self-reflective position and ultimately considering both qualitative and quantitative aspects.

EXPERIMENTAL ARCHAEOLOGY IS SUPPLYING A PROXY FOR “THE GREAT ABSENT”
OF ARCHAEOLOGY: PAST HUMAN AGENCY.

(Hurcombe 2008, p. 84-85)

Bazeley (2018 pp. 14-19) suggests five different approaches to the integration of methods in social science research. It is useful here to apply them to experimental archaeology research and to trace some reflective statements on the possible ways in which they could be developed.

1. Unawareness or dismissal. This is by far the most common in experimental archaeology: the “researchers adopt practices before they recognise and reflect on any philosophical and methodological assumptions”, so there is no trace of this in their work. The dismissal finds justification in some “real world” research in social science, being thus defined as a-paradigmatical studies (Bazeley 2018, p. 15).

2. Sustained polarity. In this approach, impervious separation is kept between the paradigms and therefore the methodology. This approach does not deny the possibility of using mixed methods, but keeps the phases neatly separated and attempts integration only in the conclusion phase of a study. This approach is therefore better defined as “multimethod” (Bazeley 2018 pp. 15-16). Experimental archaeology studies have demonstrated good potential in a multi-method approach, although mainly focussed on quantitative analyses (see for example Longo et al. 2021).

3. Use of a paradigm which sustains the use of mixed methods. The best example is the use of “pragmatic” approaches as defined in the US or as “critical realist” approaches in the UK (Bazeley 2018 p. 16). “[...] critical realist approach, viewing mixing methods as a way of providing a more complete and contextualised understanding of social processes and causal mechanisms. Critical realists see a need to consider both regularities that are

assessed through empirical observation of patterns of associations and the context-driven mechanisms behind those patterns, the latter being identified primarily through understanding people's constructions of their experience and of the processes involved. Both of these philosophical approaches [pragmatic and critical realism] recognise the existence of an underlying reality (more complexly described by critical realists than pragmatists) but also emphasise the tentativeness of our observations, and both typically draw on abductive logic that characterises an iterative movement between inductive and deductive methods" (Bazeley 2018, p. 16). This, apart from the theoretical stances on this thesis, is yet unprecedented in experimental archaeology, apart from the attempt done in this thesis (see appendix 2).

4. Use of a dialectical approach. In this approach there is no intention to "resolve contradiction", and different paradigms are used to increase "listening and understanding" (Greene 2008, p. 20 as quoted in Bazeley 2018 p. 17). This approach could be defined as a new postmodernist dialectical thinking process. Some scholars have interpreted this to be a metaparadigm. This approach is deemed the most appropriate for collaborative projects among different stakeholders "while [...] thriving on difference and intellectual tensions". This reflexive participation in research and the motivation to work democratically and collaboratively, leads to "warranted, provisional truths and working knowledge" (Johnson 2017, as quoted by Bazeley *ibidem*). "Benefit accrues in the form of new ways of thinking and *practical theory* that incorporates abstract theory *and* local values and contexts" (Bazeley 2018 p. 17, italics in the original). This approach seems to be indicated as particularly useful in participatory forms of research in experimental archaeology and was suggested in this thesis as part of the theoretical best practice model (see below, 6.4).

5. Applying an overriding theoretical or ideological position. In this instance, the research work is driven by "a strong theoretical basis that brings coherence to the work" (Bazeley 2018 p. 17). The underlying "paradigm" is a transformative one (Mertens 2007 as quoted in Bazeley *ibidem*). This is evident in the feminist approach in which the challenge is to ascertain assumptions and knowledge sources, focusing on the differences that exist in the power positions where knowledge is produced (Bazeley 2018, p. 18; Fricker 2010). The added value of this transformative approach is considered to be relying on the

axiological aspect, needed in pragmatists' views (Bazeley 2018 p. 18, Biddle & Schafft 2015). An attempt to perform this kind of approach was made throughout this thesis. No examples in experimental archaeology are known.

Social science researchers have also discussed about a basic agreement among them, in order to effectively integrate the methods. It is useful to report here some points of it in full, as this thesis advocates for them at all levels of research (and therefore suggests them as part of the best practice model):

- *“What appears reasonable is relative, i. e., it can vary across persons*
- *The theory-ladenness of facts – what we notice and observe is affected by our background knowledge, theories and experiences*
- *It is possible for more than one theory to fit a single set of empirical data*
- *A hypothesis cannot be fully tested in isolation, testing involves making various assumptions that mean alternative explanations will continue to exist.*
- *Recognition that we only obtain probabilistic evidence, not final proof in empirical research*
- *The social nature of the research enterprise – researchers are embedded in and are affected by the attitudes, values, and beliefs of their research communities*
- *The value-ladenness of inquiry, affecting what we choose to investigate, what we see, and how we interpret what we see.”*

Jhonson & Onwuegbuzie 2004, p. 16 as quoted in Bazeley 2018, p. 18.

There is no space in this thesis to delve into philosophical ponderings about the nature of qualitative and quantitative aspects of data, although it is highly desirable that the theoretical debate moves in this direction, both for primary data acquisition and, crucially, for data analysis, hypotheses, and interpretation.

If we consider as useful the Critical Realist approach, one of the methodologies best suited to the integration of qualitative inquiry and quantitative analysis is the so called Case Study methodology. As we have previously noted (see paragraph 3.3.2), this method allows

the research to be sufficiently dynamic, constituting one of the more frequently utilized frameworks for integrated methodologies studies in the social sciences (Bazeley 2018, pp. 237-239). A Case Study is also perfectly adaptable to numerous theoretical approaches and can use either the qualitative ground-up methodology and/or the quantitative statistical approach only. Its versatility lies in the structuring of the phases of the research process, as already pointed out, within a process of constant refinement and deepening of the focus of research. This cyclical refinement, and use of both quantitative and qualitative properly addressed approaches, seems also to be the best method for adaptation to a retrodution or abduction logical chain in the research endeavour, as has previously been described. Also, it allows the research the space to include more intimate, self-reflective statements and analysis, thus considering in a comprehensive qualitative way the self-reflection phase needed in every archaeology research endeavour, while simultaneously reinforcing the social responsibility of archaeological research.

Case Study methodology is substantially a multilevel approach to a complex area of investigation, which could be applied to topics in archaeology and experimental archaeology alike. This thesis has used a Case Study methodology (see Chapter 1), and literature is available to guide scholars in this direction (Yin especially: 2018).

In conclusion, one possible way forward for experimental archaeology would be to retain the work so far made under the “processual” side of it, i.e. considering material properties of the record and the experimental protocol itself, and integrating the qualitative aspects of both the material and the human components (both agency and motive) in an appropriate and critical, reflexive way. In this way, all aspects are given an authentic place in the construction of the best possible explanation of the archaeological record itself and can actually contribute to our knowledge of the societies which produced them in terms of their relationship with their environment, while retaining full social responsibility within contemporary society.

6.4 Citizen Science in AOAMs? Bridging and completing the model.

If the previous two paragraphs were addressing an “internal” issue, typical of high-level reflection upon the acquisition of knowledge, and, thus, were referring to the *inreach* academic outputs of the present work, this section will illustrate the “outreach” component of that issue, even if the distinction between them is, once again, being enforced for the sake of clarity rather than for illustrating reality. An attempt was made as early as 2018 to involve the Higher Education Institution in what had been defined as a “Community Experimental Archaeology Project” (see the concept in Appendix 8). This project had the purpose of directing the efforts toward a public participation in academic research driven initiatives. It was a test to find possible ways to involve the community in the research process which should be present underneath the “Who and behold” which is nowadays sold as “experimental archaeology” (see Cole’s quote, paragraph 4.2.2). Drawing upon the well-established community archaeology activities experiences in Ireland (see Doyle 2018; Kador 2014 for the definition and spectrum), and the wider field of Public Archaeology experiences (Henson 2017; Thomas 2017; Richardson & Almansa-Sanchez 2015), as well as relying upon international Heritage agreements (Faro convention for the Council of Europe, see EU Faro convention webpage), the project was targeting the involvement of the community on the long period. The setting of social sciences protocols and research integrity would have allowed the project to return data both to archaeology and in social science. The existence of an open-air laboratory on the premises of the HEI, which had been previously successfully opened to the public on many occasions, could have provided a space for this project (therefore premises are not mentioned in the Concept, see Appendix 8). Unfortunately, it was not possible to proceed in the development of this project⁵. The study had therefore to search for another path, which could be more structured on ethics and on scientific literacy.

As we have seen, some internal issues regarding the integrity of the research process were embedded within experimental archaeology and they required clarification at an ontological and epistemological level. The ethics of experimental archaeology, however, are equally relevant in the role which this practice has regarding another fundamental

aspect of research integrity, i.e., societal considerations. As we have seen in Chapter 2, the commodification of the past in the characteristic external forms through which experimental archaeology is perceived by the general public has had significant impact and endurance in propaganda and power-related issues at a wider societal level. Despite how it might be generally perceived, experimental archaeology has been characterised since its beginning as a challenging research practice, which has sometimes been able to reject obsolete assumptions about the past, and one which has allowed archaeology to progress in different ways. Some of this progress, as we have seen above in the case of the artifact analysis scheme, can take the form of a new classification for artefacts, one which can substitute for and revisit or revolutionise previous classifications⁶ (see below, 6.5.1). It was remarkable that this “disruptive” or better, corrective aspect of experimental archaeology was also recognised by the agents involved in experimental archaeology practice in the survey results (see Chapter 4).

The “revolutionary” role of experimental archaeology in breaking down unproven assumptions and challenging the *status quo* of archaeological knowledge has yet another aspect, which is that of participation. The working hypothesis of this thesis detected Citizen Science and the involvement of the public into the actual interrogation of the archaeological record in AOAMs setting as a way to counterbalance the commodification of the past by top-down positions with bottom-up knowledge co-creation (Chapter 2, Chapter 3). But how can Citizen Science be applied to Experimental archaeology in AOAMs? The results of the pilot study were quite pessimistic regarding the gap between the scientific literacy that is current, and that which is needed, to truly lead the public towards engagement with the questioning of the past (paragraph 5.2.7). The “ancient technology” approach to the topic, and thus to demonstrations, still predominates over experimentation in the field. While surely useful for other purposes, this is nonetheless different from the actual research process embedded within the gathering of data in order to falsify a hypothesis and thus to contribute actively to the creation of a new interpretation, as a means of seeking the best possible explanation, be it qualitative or quantitative. In such an approach, the public, or the participants (and some researchers too), are not yet allowed to understand the tools needed to create a “symbolic universe”, which could help clarify the real processes behind the re-construction of the past while also

providing them with the attitude of critical thinking necessary to avoid being misled by the commodification of the past (Chapter 2). There is still a long way to go before Citizen Science protocols can be ingrained within the context of AOAMs. This situation is determined, primarily, because of the lack of recognition of the social meaning of a sound scientific literacy basis at an academic level and, more generally, is reflecting a general mistrust towards science.

Even so, it is useful here to delineate how Citizen Science could be integrated using the model above proposed, and why the potential for such integration would be significant in the field of experimental archaeology uses within AOAMs.

As Citizen Science is yet another subject which has undergone considerable discussion and re-definitions⁷, and the old distinction between Science and Humanities has been responsible for yet another disconnection among fields in which it has been applied (Mahr et al. 2018 p. 101), in this thesis a specific concept of Citizen Science has been utilized through the adoption of a critical perspective. This was born in the Swiss context, drawing on a historically connotated view of the phenomenon and developed with attention to the societal considerations involved (Strasser, Haklay 2018). The reflexivity inherent in the process of participatory forms of research, as a Swiss scholar suggests, could be used, and applied in the future to experimental archaeology:

[...] peers need to challenge each other and bring about a more reflexive understanding of citizen science practices and how they can be explored, including the different motivations for advocating public participation in scientific research and where they might conflict within and between different stakeholder groups. Finally, shared spaces and tools are needed to identify, reflect and negotiate such goals.

Mahr et al. 2018 p. 109

There is just one major distinction which needs to be clarified before moving on to the core of the subject. As we have seen previously, this thesis argues that archaeology and experimental archaeology are utilizing retroductive forms of reasoning, rather than just

deductive or inductive reasoning processes, and are dealing with both quantitative and qualitative data. In one of the latest descriptive official documents on Citizen Science, considerable stress is placed on the importance of the deductive reasoning process as the fundamental law of Research (as Science), which in the view presented in that document includes the social sciences and the humanities and thus also qualitative research endeavours (ECSA's characteristics of Citizen Science 2020 p. 2⁸). It must be stated that this thesis does not endorse this either/or definition, on the contrary it encourages the enlargement of the view of science and humanities as an interrelated system of research through retroductive reasoning processes and mixed methodologies.

If we consider AOAMs as the major contexts for the provision of the shared spaces Mahr was referring to in the quote above, as well as suppliers for the tools required, we could define them as the “interfaces between academic research institutions and their representatives on the one hand, and motivated lay researchers on the other” (SSC Recommendations, in Strasser, Haklay 2018, p. 15). Moreover, AOAMs could provide both the platform through which the “interaction and cooperation” between civil society and research institutions come together and the appropriate “quality control and management” structures already in place in the management asset of the museums (Ibidem).

AOAMS

interfaces between society and research which provide management structures and quality control: potential for Citizen Science activities.

We saw in the network analysis results (paragraph 4.8) who the stakeholder groups to be considered would be, with the essential support of the local community, in a Citizen Science model. In detail, one category, that of “volunteers” seems to be the most relevant in this perspective and could give sufficient *continuity* to a Citizen Science project within the remits of AOAMs. The Citizen Science protocol differs from many other forms of public archaeology (mainly dedicated to the acquisition of primary data) and other forms of community of practice, as it involves (in the chosen model) the stakeholders in an

egalitarian space in terms of participation and collaboration, so that all the skills and knowledge which characterize all the individual and group positions can be represented with equanimity (see paragraph 5.2.6; Bazeley 2018, p. 17). This practice could potentially be challenging as all the subjects involved would need to adapt to a role which is not traditionally part of their skillset. This means that a mediator role or someone who possesses relational skills would be useful, perhaps in a pre-training phase of the project, to enhance community-based interactions.

An important consideration to be brought to the fore at this point is the fact that the citizens involved in any project would ideally be part of the team, which should also include from the outset management, researchers, and staff members. This would allow their voices to be heard from the beginning and would fulfil the aims of democracy within the remits of the Citizen Science protocol. In this sense, a place for experimental archaeology could be carved out from within the ever-growing community which associates with the AOAMs space enhancing democratic practices as well as human empowerment (Strasser 2020), getting back to twinned educational and research mandates of museum institutions.

Among the many ways in which citizens can be involved in scientific research practices, i.e., in contributing to the creation of knowledge, scholars have determined few areas of interaction⁹, illustrated in the graphic below (Strasser et al. 2018, p. 4; fig. 6. 4).

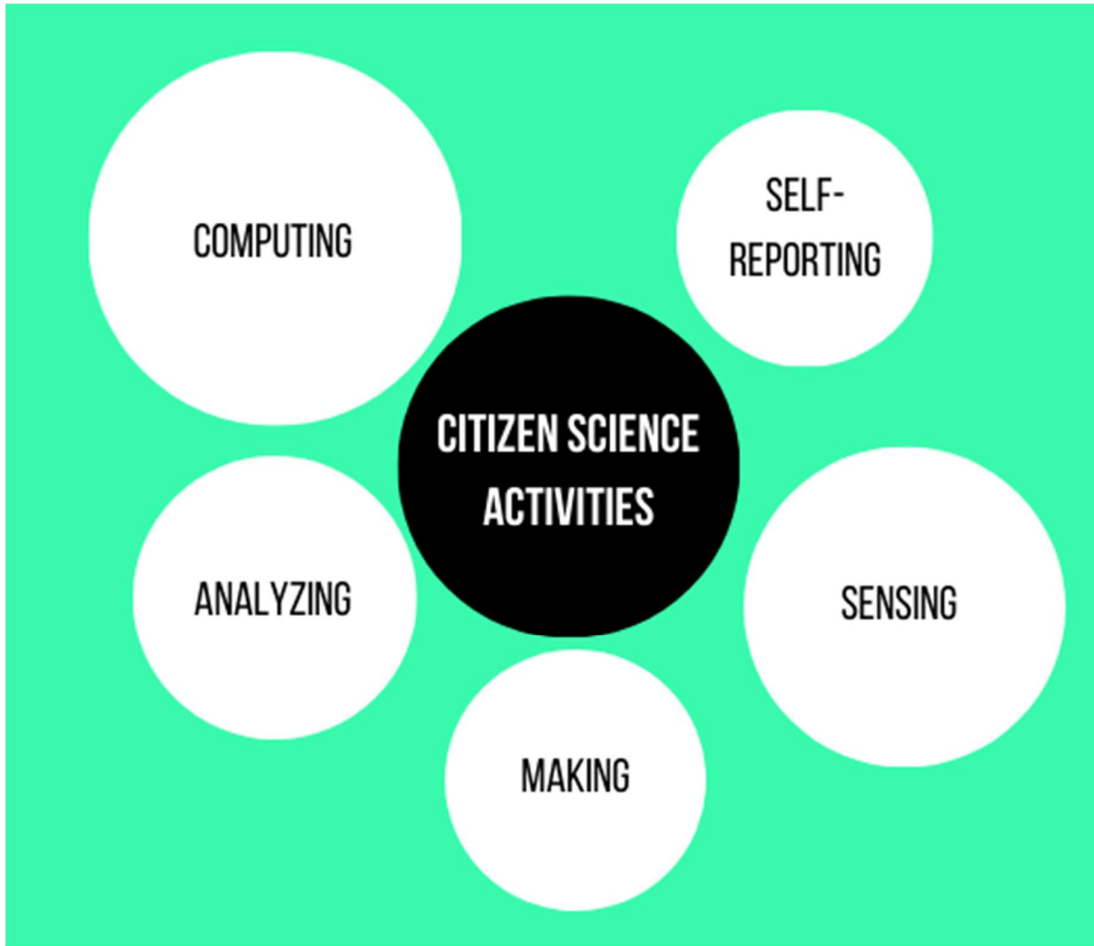


Figure 6.4 Constellation of Citizen Science activities (after Strasser 2020).

While all these activities could find proper uses across a broad spectrum of possibilities in the wider world of archaeology and experimental archaeology (see below for two applicative examples), some of them could be performed in an AOAM setting with even greater ease. This is specially so for *sensing* (providing observations on external phenomena under scrutiny) and *self-reporting* (providing personal feedback on sensory aspects, for example), which could find a place in experimental archaeology projects within the AOAM setting. The contribution of the public during an experiment undertaken in an AOAM could, in fact, take the form of personal-assessment of the outcome of the experiment itself, while also contributing to the collection of qualitative data, all of which should be adequately framed within a sound and ethically designed research protocol.

An example of such an activity, in this case an experiment testing the production of garum (a type of fish sauce produced during the roman era: Comis 2009a), was performed in a project financed by the Research Grant in Lejre (DK) in 2009. The experimental work had to be carefully designed in order to yield substantial results and, most importantly, was to be performed with the participation of members of the public. To ensure the ethical integrity of both the research process and the participation of the public, the health and safety issues were considered very carefully to ensure full protection of the visitors as active participants in the research process. The visitors who were willing to take part in the research were asked to sign an informed consent form about the activity, which also detailed the potential risks inherent the activity. The public was asked to then provide feedback in terms of their own sensory perspective on the garum produced on that day, by assessing its organoleptic characteristics, as well as personal feedback on the recipe itself. Even though at the time this experimental project was not framed within the protocol of Citizen Science and had a limited duration of only one week, and that the museum institution did not divulge the experimental report from the project itself, these kinds of experiments, if carefully designed, can potentially yield real research outcomes while still being part of the offer to the visitors in AOAMs.

Returning now to the categories of activities which Citizen Science can offer, it is necessary to state that the main activity type already being performed in the terms of ancient technology skills training in AOAMs, is that of *making*. It may be argued that this category of Citizen Science activity is already being performed proficiently by re-enactment groups and living history associations, who are collaborating substantially in the offer to the visitors in AOAMs, although their Citizen Science research is not yet part of the research agenda of the museums themselves (see survey results in general, Chapter 4, and examples in paragraph 4.6). Even when re-enactors or ancient technology specialists are employed by museums simply to produce replicas of artefacts or other objects useful in a museum communication asset, it is reasonable to wonder how much of the building or making process might also entail interesting observations of value to archaeological research? Within the AOAMs setting, the important shift in perspective that Citizen Science can provide is to consider the re-enactor's or ancient technology specialists' support not only as a complement for museum staff, and as an enhancement of communication and

outreach, but as an actual research-led support. In other terms, and specifically for the material culture supply, they can be considered as “makers” from a Citizen Science perspective¹⁰. If this format is pursued, the further involvement of volunteers could integrate the research activity within the museum context for the long term.

In general, thus, the use of Citizen Science protocols within an AOAMs setting necessitates a change from concepts such as those of “users”, “customers” or “visitors” to those of “participants”, “contributors”, “co-creators” (see paragraph 5.2.7). It substantially implies a different status recognition for research participants. This new status does not undervalue the skillset of the actual researchers (if engaged in the AOAMs activities), of museum staff and coordinators in a competitive way, as most of the usual reaction to participatory research processes entails for gatekeepers but sets in motion a new form of knowledge creation in a collaborative, co-creative way. This shift in perspective, however, needs to be framed carefully in order to resolve possible frictions that might arise due to biases or hidden assumptions and expectations from both sides, the internal museum team structure and the external community or visitors. Care must also be exercised to manage predatory behaviours which might arise by, on one hand, taking advantage of free labour and, on the other, through a self-referential exclusivist form of knowledge creation (see Chapter 5).

One way to address the use of Citizen Science through experimental archaeology in AOAMs could be to refer to the UNESCO Sustainable Development Goals (2016 - SDGs). Even though, if used transversally, Citizen Science could provide a means to understand, deliver and support all the SDGs, as it already is doing (Fraisl et al. 2020), we can see how, in AOAMs, the use of Citizen Science protocols could provide a means to support, in particular, the 4th goal: “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”. The means to achieving this goal would take the form of scientific literacy through experimental archaeology. Having said that, it could also be possible to weave in some content that deals with sustainability themes, as well as touching upon all other SDGs through reflections on the archaeological past (utilizing comparison, analogy, or contrast, see Chapter 5), all the while empowering the participants in an active way, especially through applied experimental archaeology. Consistent effort

has been made by EXARC to promote and embed the SDGs in museum practice (EXARC SDG webpage), and it would be a considerable loss not to invest in the application of Citizen Science protocols in the perspective here given.

6.5 Building the Bridge. Two potential Citizen Science projects with AOAMs and Experimental Archaeology

By the springtime of 2020, it had become clear that the fieldwork activity planned in the research outline would be impossible to perform. The state of lockdown in most of Europe, and the dire consequences in terms of loss and volatility of the Covid19 pandemic, caused a drastic change in the output of this research from that which had been envisaged. A re-evaluation of the entire project considering these externally imposed restrictions, alongside unstable personal and international situation, lead to a re-consideration of the means through which the output of this research could benefit society and contribute to knowledge as a whole.

It was decided that the best option was to adopt an online approach in the endeavour to identify the potential for actual Citizen Science projects within the remits and contexts of the study. On one hand, this was intended to establish the guidelines for further collaborative and participatory research projects which could bridge the gaps between all the stakeholders involved in the dynamic¹¹. On the other, it was also an attempt to provide a means of solidifying a virtual network of contributions while physical connection was impossible, with the aim of supporting and sustaining a dialogue and means of exchange in such difficult times.

Below, the illustrations of these projects, launched through the EXARC international network platforms and a summary of the results.

6.5.1 Classification, experiment, and Taxonomy of ancient technology. An integrated approach into data acquisition in AOAMs and beyond.

As noted above, experimental archaeology has the capacity to change the way that classification techniques are applied to the archaeological record itself. It produces experimental data, which are both dematerialized and materialized, in the form of records and objects. These sets of experimental data, commonly called “reference collections” are a form of classification in themselves in which it is possible to know the full spectrum (or the most complete) of variables which produced them (Hurcombe 2007 p. 69; Strasser 2019 p. 259). In other terms, experimental reference collections, even if they represent objects and processes not yet attested in the so far classified archaeological record, can prove useful for comparison/contrast with new archaeological material and, most importantly, they possess more information than the original archaeological material. In summary, experimental reference collections provide the full documentation of a present-day artefact, so filling the “gaps” in the knowledge which constitutes the characteristics of the primary archaeological record (Hurcombe, *ibidem*; some excellent examples in Mozota et al. 2018, Lejay et al. 2016).

One of the main shifts attributable to experimental archaeology is the shift from morphological classification to production procedures classifications, functional studies, or ancient technology. The introduction of the study of production and functional procedures, in the form of *chaîne opératoire*, has led, in some specific cases, to new forms of classification, revolutionizing the former traditional static categories of morphology and type¹². This has allowed archaeological interpretation to modify its core assumptions to an actual and empirical verifiable reality, through analogy with the archaeological record, also enlarging the set of data which are usually dealt with during archaeological studies.

The resulting set of data are therefore articulated in a very complex and interrelated database. In some cases, sometimes multiple, parallel databases, which require horizontal correlation to produce sound inference. The interrelationship between traditional classification of the archaeological record (Hurcombe 2007 p. 9 and specifically pp. 18-22, p. 40; pp. 110-208) and experimental archaeology data could be supported and improved

by the interrelationship with yet a third kind of database; one which could refer to the extant practices of ancient technology as performed by the “makers” in Citizen Science (Strasser 2019 p. 238; p. 271; see Barrett 2016, p. 136).

The aim of this project was to set the fundamentals for integration of the three available systematizations of data collection in archaeology:

1. “The archaeological record, as it is, fragmented, chronologically and geo-historically connotated. It is fixed and can only be augmented by the retrieval of new archaeological records. This dataset is in contact with the following one only in crucial points, such as gaps in the archaeological record itself.
2. Experimental archaeology data in which the aim is to gain understanding about the archaeological record through dynamic replication and includes experimental data (reference) collection and analysis.
3. The potential of ancient technology taxonomy¹³ as it is performed today, based on experimental data”.

(Comis 2020)

These three different datasets (from both ontologically and epistemologically conceived perspectives) could be interrelated ethically in a continuum cyclical way. Information from the archaeological record can inform experimental investigation, which can be compared to extant ancient technology practice, and which could start to be taxonomically understood, and therefore mapped, for the first time from a global perspective. On the other hand, the reverse is also possible, i.e., moving from extant ancient technology practices, new experimental work could be performed (and sometimes this already happens through the apportioning of ethnographical analogies) and could in turn clarify the missing aspects of the original archaeological record.

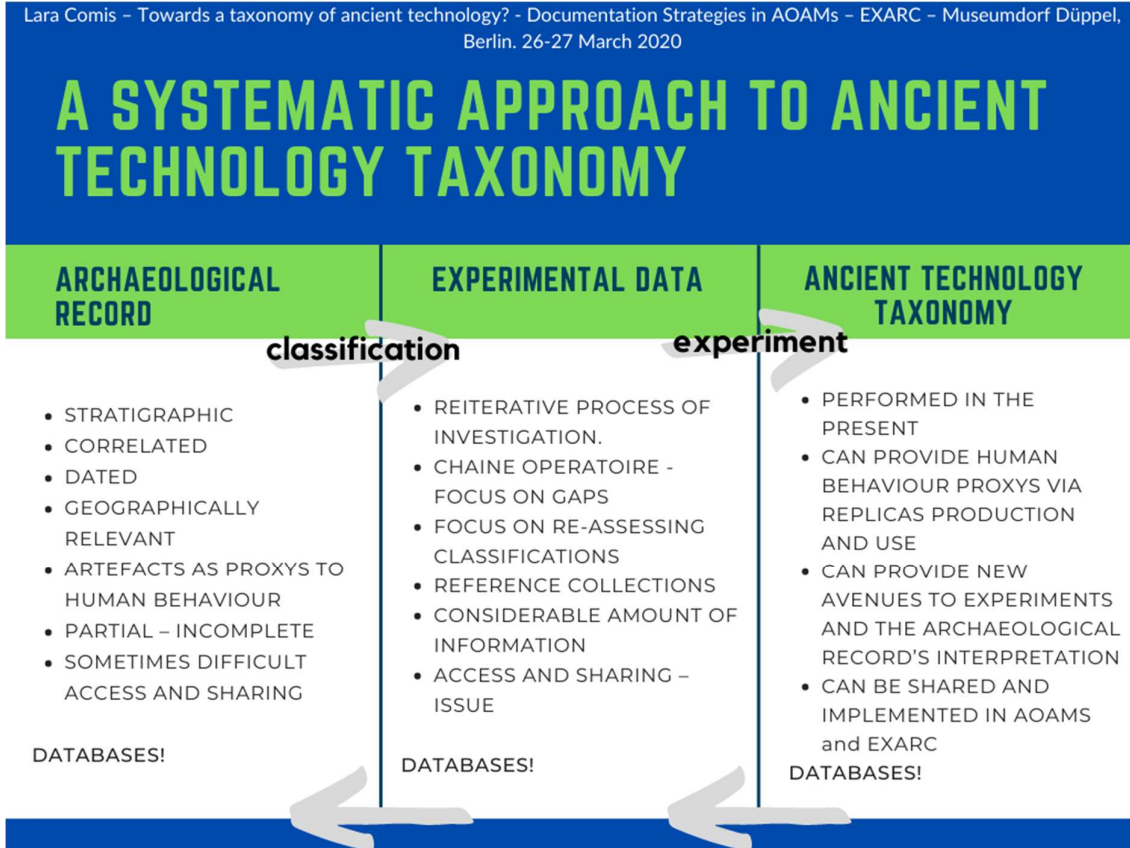


Figure 6.5 A systematic approach to ancient technology taxonomy.

This process would also allow all the stakeholders involved in the data collection, scholars or citizen, to verify the validity of their contribution to the interpretations of the archaeological record. Again, this “exercise” could potentially be performed in settings in which ancient technology and experimental archaeology are actually, or virtually, related back to the original archaeological record:

The archaeological record is the starting point for all the work done in experimental archaeology and in AOAMs, where most, but not all of the ancient technology activities are performed.

Comis 2020

The mapping of ancient technology practices would be possible through the simple collection of data in AOAMs, possibly through the existing EXARC international network. The process could also involve the gathering of data from re-enactment groups and from satellite activities in ancient technology through the use of a Citizen Science Platform¹⁴.

This seminal idea about the three interrelated systems of data collection and the use of Citizen Science protocols was presented at EXARC's first online conference in March 2020, the focus of which was on "Data Collection Strategies in AOAMs" (Comis 2020). Interesting feedback and responses from all categories of people involved in the experimental archaeology-AOAMs dynamic were received as a result of this presentation. Despite this, the challenges that would be posed by the meta relational database in any effort to create a sufficiently powerful structure designed to gather such diversified and complex, multi-layered data (since the variables of time and geo-historical locations have to be taken into consideration, especially in the first two sets of databases), were too great to be tackled at the time. A team of interdisciplinary specialists would need to be established within a wider, international research project framework in order for the full extent of the endeavour to take place and a proper Citizen Science platform would need to be designed, utilizing a neural network learning machine (A.I.), for the purpose of gathering and storing information¹⁵.

6.5.2 ABADIR: a Soundscape project to rule them all. Sound-based cloud sharing as a potential Citizen Science platform.

Following on from the concept outlined for the previous Citizen Science project on the three interrelated databases, this second project was created in order to gather and share data which could:

1. bridge all categories of stakeholders,
2. have a transcultural meaning
3. contribute to the understanding of the similarities and differences between research and public outreach, while remaining open to the public

In terms of this thesis, searching as it does for a completion of the theoretical model which can be used as a means to promote the participatory aspect in experimental archaeology, a model involving the senses seemed to be the first appropriate step to be taken. This choice acknowledges the current trend in the English-speaking world towards a heightened awareness of the sensory aspects in experimental archaeology and archaeology at a wider level¹⁶. To do so the chosen medium was sound.

Sound and the other sensory perceptions are currently being researched and “practised” in archaeology, in the attempt to cross the border between the past and the present (Skeates & Day 2020). Even though such efforts often rely upon the epistemic and ontological fallacy already discussed in this thesis and do not seem to consider the uniformitarian assumption as a fundamental asset of all findings (see Howes 2020, p. 26-28), some outcomes created important communication tools for museology (Elliot 2020 pp. 331-333). In addition, some scholars have started the process of including the qualitative aspect of sensory information in a heuristic process, indicating the potential for the integration of methods (Hoaen 2020 p. 167).

It must be reiterated that this initiative was started during the “hard lockdown”, when the people usually involved in open-air activities in AOAMs and research facilities could not perform their usual activities, and morale was affected by the tremendous loss of life in the first Covid19 wave of March-April 2020. The project, therefore, was also meant to provide support and to stimulate all the subjects involved in the dynamic to search in their archives and share with others (on the free access SoundCloud platform) all sorts of Soundscapes from:

- experimental archaeology research activities.
- ancient technology demonstrations.
- AOAMs museum setting soundscapes.
- re-enactment and living-history festivals.

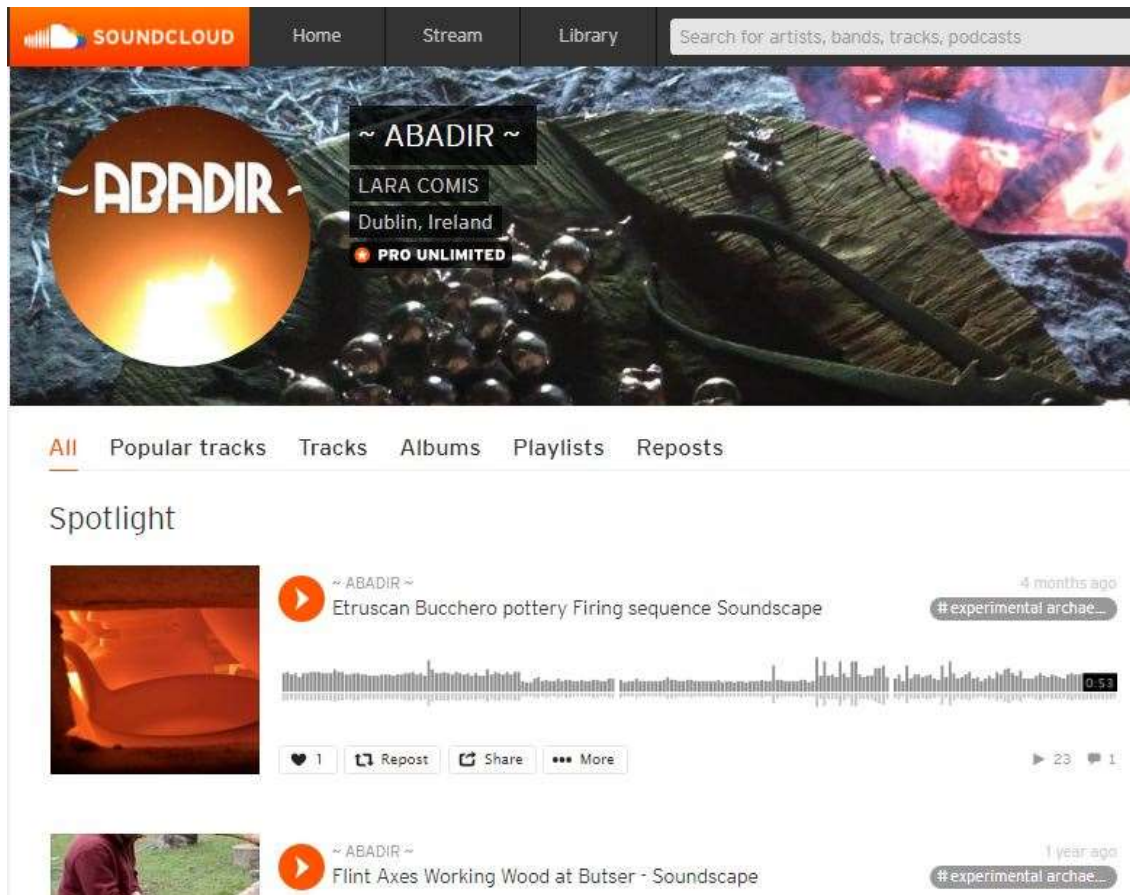


Figure 6.6 Homepage of the ABADIR SoundCloud project. Available at: <https://soundcloud.com/user-170792699>

The contributions already published and freely accessible on the SoundCloud Platform ABADIR (ABADIR SoundCloud, fig. 6. 6) have been collected and uploaded with a short description that explains the origin of the sounds (see Appendix n. 9 for an example). So far, there are examples from traditional museums, AOAMs, re-enactment, experimental archaeologists, craft training. The soundscapes include sounds from metalworking, woodworking, winemaking, flintknapping, thatching, musical performances, etc. When available, some links or references were included in the description to link the soundscapes to the relevant literature. Tags help definitions of categories, although there are no formal sections: all the above listed soundscapes are published on the same page. All the contributors were asked to decide under what licence their contribution could be uploaded and were credited both in the description text both and on the relevant copyright page.

The most frequently selected is a creative commons attribution – non-commercial – share alike option (see Creative Commons BY-NC-SA 3.0). In other words, the uploaded soundscapes can be used and shared for non-commercial purposes with attribution to their authors, but modification is not allowed. This choice was made in order to differentiate ABADIR soundscapes, which could be considered as “building blocks”, from already articulated works of art, thus encouraging contributions from across all the categories involved.

ABADIR is thus the initial setting of a sort of “sound archive”, gathering together, as envisioned in the previous project, the testimony of the “ancient extant past”.

In order to become a proper Citizen Science Project, this project would need to migrate to a tailored online archival tool. The main difference between this approach and existing online Citizen Science projects is that the end users are contributing to the creation of an archive, rather than analysing or evaluating data already gathered. In other words, the “measurements” we are collecting are actually produced, with full autonomy, empowering the citizen scientists engaged in experimental archaeology and related activities who produce them. This is happening in some specific Citizen Science projects which are typically linked to the gathering of health-related data (see above, self-reporting) and data collection related for numerous environmental and animal life related purposes (sensing).

The project, therefore, needs to grow and obtain proper management tools in order to fully enter into the spectrum of Citizen Science, possibly in collaboration with already established networks in the relevant fields (EXARC and ECSA primarily). It has, however, already demonstrated to have good future potential.

¹ Hurcombe (2008, p. 84-85) has already reflected on this “absence”: “Where there is no connection with a living society, it is experimental archaeology which can provide at least some practical parameters and insights”.

² See the concise article on the development and definitions of science and pseudoscience by Hansson (2009).

³ And this is yet another ethical issues of research integrity, as it is possible to read in the Singapore Statement for Research Integrity (2010, point 3).

⁴ Despite many archaeology scholars have attempted to build frames of reference for inferring societal considerations about the interpretation of the archaeological record, especially regarding prehistoric societies (see the “Middle Range Theory” between processual and post-processual archaeological thinking: Tschauner 1996), the view proposed here is set on ontological and epistemological issues primarily and in the acknowledgement of the necessity of relying on time as a crucial factor which entails ethical considerations.

⁵ Possibly, the concept of this project might be useful to AOAMs who can count on long-term collaboration with research Institutions or individual researchers.

⁶ I will give an example in detail, but there are many others. An experimental archaeology study was performed on the production procedures of a specific class of ceramics, that of bucchero (jet-black production, typical of the Italian Iron Age). Because of an error in the sealing of the firing chamber, the outputs of the experiment were not sufficiently subject to the oxygen reduction which causes the black colour of the ceramic body. Unexpectedly, the colour of the ceramic vessels was light grey. The so called “grey ware”, very common findings in iron age layers, were, beforehand, attributed to the “Celtic” tribes inhabiting the area. But their morphology was virtually identical to the bucchero ones, only, the bucchero has always been attributed to Etruscans, not “Celts”. This study, therefore, challenged the ethnical attribution of that kind of pottery on the base of both experiments’ results and “traditional archaeology”, and, from a collection perspective, destroyed the boundaries between the two categories of pottery by utilizing an archaeology of production perspective. The two ceramic classes were produced with the same raw materials and the same firing structures. It was the degradation of the firing structures to cause the different colour of the sherds. Changing the ethnical attribution to such a relevant archaeological finding is due to have a radical effect in the archaeological reading of the occupation of pre-roman north Italian Iron Age. But it will also pose different questions to the archaeologists who are performing stratigraphical excavations every day and will push scholars to a careful re-assessment of the previously achieved record, with important archaeological/historical consequences overall (see Deriu 2009).

⁷ See the recent publications: Vohland et al. 2021; Hecker et al. 2018.

⁸ ECSA is the European Network for Citizen Science.

⁹ These are some of the examples for each as illustrated by Strasser et al. 2018, pp. 4-6. Sensing: eBird (2002); Computing: SETI@home (finished project); Analysing: Galaxy Zoo (2006); Self-reporting: PatientsLikeMe (2016); Making: Counter Culture Labs (2013- finished project).

¹⁰ If this shift in perspective could be addressed at a global level, figures regarding the “makers” contribution to Citizen Science in general could result in a relevant increase. Strasser (2020) reported 5.6 million computers, 1.8 million sensors, 1.7 million analysers, 0.6 million self-reporters and only 0,006 million makers.

¹¹ See an example performed in Austria during the lockdown which involved primary school pupils: Fielder 2020.

¹² One example is the re-assessment of lithics in a functional sense across the transition between Early Upper Palaeolithic and Late Upper Palaeolithic (ca 2500 14C BP) in Japan and Korea (Chang 2013, Shea 2013).

¹³ The term “taxonomy” is here used in a translated metaphorical sense from the life sciences.

¹⁴ The RETOLD EU project, of which EXARC is the project leader, is already using forms of sharing of information through visual means.

¹⁵ Huyser, K. (2020) E-mail to Lara Comis, 8th April.

¹⁶ This approach is not new and had importance primarily in the field of material culture studies in experimental archaeology: “[...] , material culture engages all the senses: ethnic cooking styles can be discerned by smell and taste and styles of vessels, the temperature of a furnace can be heard as well as seen and felt, clothing can be felt, crystals in metal can be heard by bending a bar, it is possible to hear a well-struck flint flake or hear the flay in a cracked cup or piece of rock, one can feel a dull edge, a handle polished by years of use, the drape of a textile or when hide has been well processed; chemical and textural compositions can be tasted and the way a hide or cord has been prepared may be smelt” Hurcombe 2007, p. 7.

7

Conclusions

7.1 Introduction

Experimental Archaeology has been considered in this work to be a complex social phenomenon, charged with cultural meaning. It was therefore analysed accordingly in the chosen contexts (Archaeological Open-Air Museums – AOAMs) from a critical realist perspective and an axial direction across all the categories of agents involved in the dynamic of the phenomenon itself. The research process has been shaped according to retroduction cyclical procedures and using social sciences qualitative methods of analysis. The dynamic was explored in the literature, philosophical themes were discussed, and a suggestion was made as to how to overcome the theoretical and methodological fragmentation. The dynamic was then mapped and analysed through an online survey. The results of the mapping lead to performing a Pilot Case Study in Ireland in the summer of 2019. The Covid19 outbreak and internal issues prevented the research to perform the necessary fieldwork. Therefore, the outcomes of the research and the outputs had to be transformed into mainly qualitative results and theoretical outputs. Finally, two projects were launched to inform a possible application of the study so far made.

Going back to the research questions which were outlined at the end of Chapter 2 (2.4.3) and keeping in mind the working hypothesis in paragraph 2.4.2, it is time now to assess the results of this thesis' exploration.

7.2 Research and the epistemological perspective – results and possible solutions

The results of the online survey, listed by categories of respondents, have evidenced a rather complex situation regarding the perceptions and use of “research” within the remits of experimental archaeology activities in general. The triangulation method utilized to map the dynamic and the insertion of both Academia and Independent Activities with Museum Institutions is unprecedented in former studies on the phenomenon. While confirming the loss of research performed within AOAMs Institutions that is not shared with the scholarly community (see paragraph 2.4) and recalibrating the role of experimental archaeology within Academic Institutions (see paragraph 4.5, Q. 24-25), the survey has also shown how the methodological uncertainty in the field is affecting Independent Activities and their research endeavours (see paragraph 4.6, Q. 33).

On the other hand, all three categories of respondents seemed to be aware of the potential connection through research itself with each other (Museums: paragraph 4.4, Q. 15; Academia: see fig. 4. 21, Q. 28; Independent Activities: fig. 4. 31, Q. 44).

During the Pilot Case Study, interviews from the previously detected categories of stakeholders in the dynamic of experimental archaeology in AOAMs (paragraph 4.8) were analysed (Chapter 5). Regarding research and experimental archaeology, despite some interesting insights and potentials, the results were discouraging (see paragraph 5.2.7). “Sharing research” was assimilated to “promotional activities” in the sense of financial gain or advertisement (fig. 7. 1). The educational mandate seemed to rely solely on ancient technology skills and did not deal with experimental protocols. This confirms how the settling of a common methodological ground, regardless of the theoretical framework, is deeply needed in experimental archaeology (paragraph 2.2).

In conclusion, the research aspect of experimental archaeology, conceived as a fundamental assumption of this work (see paragraph 2.1), was proven to be scarcely recognised. Most importantly, it veiled a more significant absent aspect, defined as a transversal skill, which can be named “scientific literacy” (see paragraph 5.2.7).

The issue of research and scientific literacy appeared to be exemplified by the misunderstanding between experimental archaeology and ancient technology practice (fig. 4. 34, Q. 37). When performing research, experimental archaeology activities address a gap in knowledge. In demonstration activities the gap has already been partially covered and can be illustrated to the public (paragraph 4.2.1). To aid the understanding of this significant - but not necessarily sharp - difference, the total epistemological process of archaeology was systemized in a potential Citizen Science project (paragraph 6.5.1).

The impossibility of performing research in the field determined the need to deliver ideas for a best practice model at a theoretical level, providing some existing examples which could be implemented by the model itself (Chapter 6).

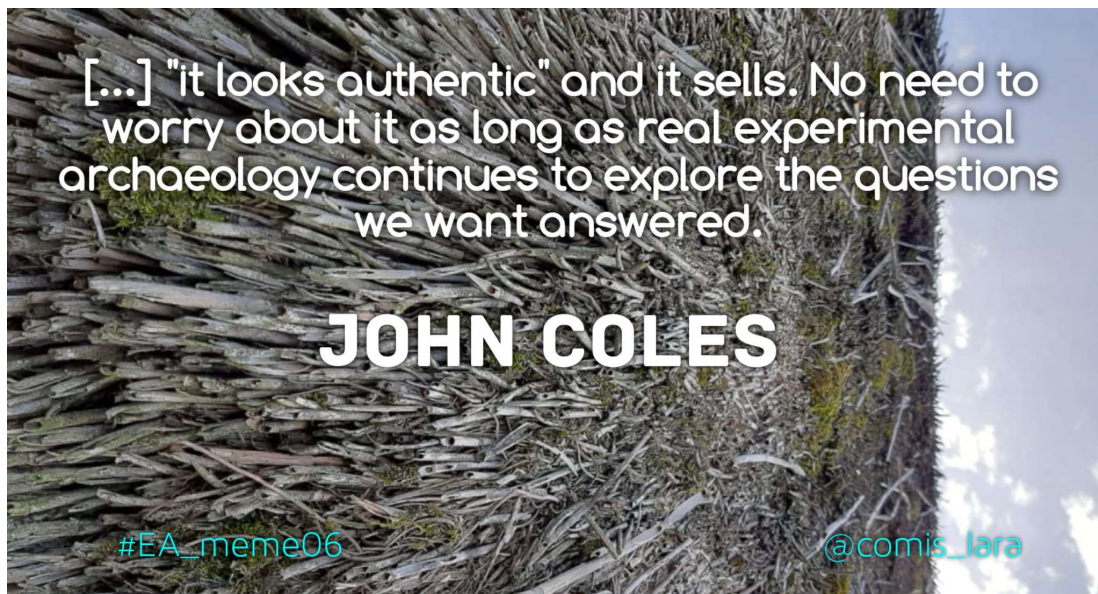


Figure 7.1 Experimental Archaeology meme 06, in memory of John Coles. Picture and meme by author. 16th October 2020. Available at: https://twitter.com/comis_lara/status/1317127458722906118/photo/1

7.3 Ethics and experimental archaeology. Results

As the previous theme, i.e., research as a primary function, the questions about ethics were a fresh perspective regarding experimental archaeology in general. It was not possible to complete the research on the field on this aspect because of the Covid19 pandemic. Therefore, this thesis has gradually presented two main aspects concerning ethics and experimental archaeology in the development of the performed study itself and attempted the dissemination of some of the results (Comis 2021a; fig. 7. 2).



Figure 7.2 Cover of the video presentation on Ethics and Experimental archaeology. 18th March 2021. Graphic design: EXARC. Photo: Author. Available at: https://twitter.com/comis_lara/status/1372501533145845762/photo/1

1. **Research integrity.** This issue is indissolubly linked with the purpose of research above. From this perspective and drawing from the Singapore Statement for Research Integrity (2010) together with Social Sciences ethical perspectives, some aspects seemed to be relevant: **a.** Internal consistency of the research process; this would guarantee the practice of experimental archaeology to avoid accusations of being a questionable research practice, regardless of the theoretical framework applied. **b.** Ethical treatment of living human participants (researchers included; paragraphs 1.8; 2.4; 3.5); this would stimulate the transformation of experimental archaeology activities in which human participants are not adequately considered and acknowledged (paragraph 2.4.1).
2. **Societal considerations** (Singapore Statement for Research Integrity 2010, point 14) pushed the analysis to focus on the social responsibilities of experimental archaeologists, emerging also from a purely theoretical perspective (paragraph 3.5). Considering the underlying troublesome issue of commodification of the past and the skewed perceptions still lingering on the communication of results to the community (scholarly or otherwise) this aspect seems to be crucial for experimental archaeology to recalibrate its potential apportion to society (paragraph 2.4.1). The exposing of ethical dilemmas previously unacknowledged in the communication of heritage (paragraph 2.4.1), was exacerbated by the presence of biased narratives in the Pilot Case Study (paragraph 5.3.2).

For this aspect, as for the research perspective above, there seems to be space for reiterating some crucial points regarding the ideological biases still present in the communication of archaeological heritage. As Müller-Scheessel (2001) reminds us, three were the ideologies which archaeological objects depended upon when exhibited together with reconstructions:

- progress,
- racism, and
- nationalism.

Unfortunately, these ideologies were shaped by archaeology itself in the context of the *Expositions Universelles* when the phenomenon of AOAMs was born at the end of the XIX century (Müller-Scheesseel 2001 p. 400; see paragraph 2.3.4; endnote 2.25). The testimony of some stakeholders involved in the social dynamic under scrutiny during the Pilot Case Study, though, seem to indicate some positive change in these narratives (see paragraph 5.3.2).

7.4 Citizen Science and Experimental Archaeology. Results

The last research question was addressing the potential for best practices to be shaped into coherent Citizen Science Projects. Despite having attempted in creating a baseline on which to expand upon within the HEI where this research was meant to be performed, it was not possible to develop it (paragraph 6.4). Contacts with the international venues where this could have been possible to develop, were halted due to the Covid19 Pandemic, the consequent restriction of movement and AOAMs activities' contraction.

Based on the (negative) results of the Pilot Case Study (paragraph 5.2.7), the most urgent theme to be addressed in order to allow Citizen Science to be part of the dynamic of experimental archaeology, seems again to be scientific literacy. Unfortunately, this theme is charged with old dichotomic thinking and misunderstanding also in the academic world, as the theoretical inquiry has evidenced (Chapter 3).

After the Covid19 Pandemic, an open access online Citizen Science project was launched in April 2020 (paragraph 6.5.2). This project aims in bridging the categories of agents involved in the dynamic under scrutiny using the medium of sound. By bringing together contributions from researchers, living history groups and museum representatives, sound can not only bridge knowledge and experiences, but can also provide the general public with a democratic way to enjoy the study and communication of the past (fig. 7. 3).

The use of Citizen Science to involve the general public with the UNESCO Sustainable Development Goals (SDGs 2016) within the AOAMs reality could moreover translate the knowledge creation process in a useful way for environmental and ethical education (see paragraph 6.5.2). A proposal regarding this possibility will be presented at the ICOM conference in the summer of 2022 with EXARC ¹.

This example closes the attempts in mitigating the negative results of the inquiry in a practical sense. Unfortunately, no further advancement could be pursued within the limits of this study. Below, the theoretical proposals and innovations which could benefit the field.

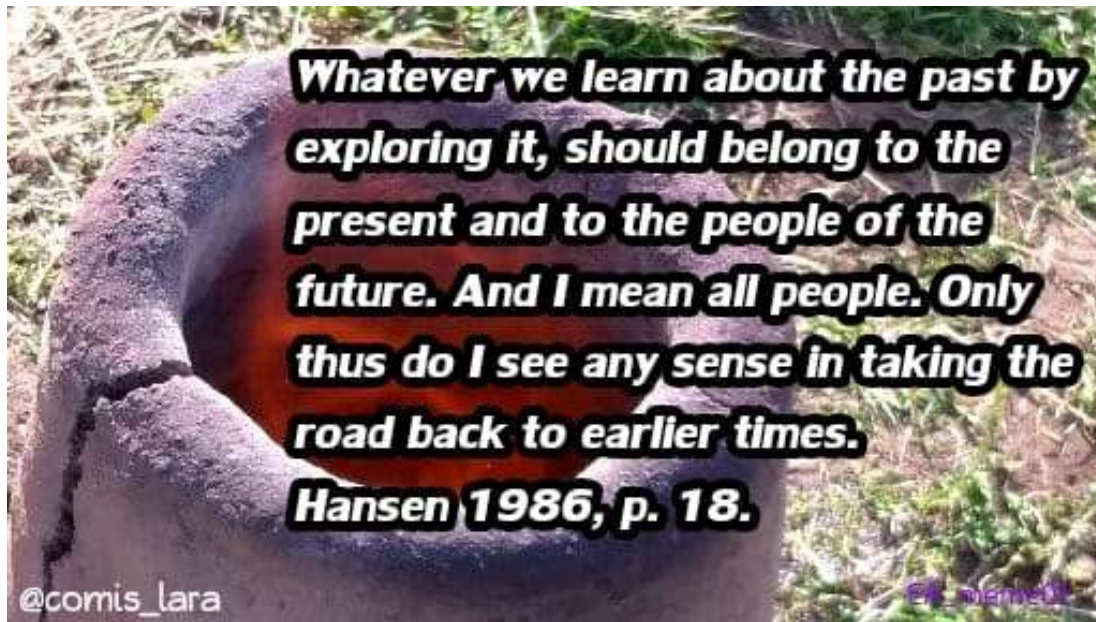


Figure 7.3 Experimental Archaeology meme 01 (in memory of Hans Ole Hansen). Picture and meme by author. 28th February 2019. Available at: https://twitter.com/comis_lara/status/1098167376250658816/photo/1

7.5 Bhaskar's Critical Realism, experimental archaeology, and archaeology.

The use of Critical Realism in approaching experimental archaeology intended as a complex social phenomenon is unprecedented. In this paragraph a summary of the most important observations regarding the application of this philosophy to the phenomenon will be illustrated.

1. It allows us to overcome the duality-based paradigm under labouing the dichotomy between polarities such as the one existing between processual and post-processual archaeology, quantitative methodologies, and qualitative values² (see paragraph 2.2.2) and utilizes an in-depth, layered concept of ontology. Thus, experimental archaeology can be considered a hybrid discipline without detriment.

2. The ontology of absence (which has been described in the practical application for experimental archaeology epistemology and ontology, and which has proven to have importance also in the wider field of archaeological theory overall; see paragraph 3.5).

3. Retroduction or abductive reasoning processes. Retroduction may also be considered as a hybridisation of deductive and inductive reasoning processes in trying to know an object of research which is characterised by being distant in time and from which incomplete and degraded information is available only (paragraph 3.5).

4. Immanent critique and the "critical difference", that which makes our research relevant for today's society, at least in its potential by introducing a strong focus on self-reflection (see paragraphs 3.4.1 and 3.4.2).

Experimental archaeology, which more than other branches of archaeology is using the body of the researchers themselves in the inquiry process, was found to provide, if self-reflectivity is practiced, a *proxy* for the absent past human agency (paragraph 6.3). Because of this, the overreliance on the translated uniformitarian assumption in experimental archaeology practice has been subject to immanent critique across the whole thesis (fig. 7. 4; paragraphs 2.2.1; 2.2.2; 3.2; 3.4.1; 3.5).

One of the novelties of the application of this framework to the study of experimental archaeology from a philosophical perspective, was the introduction of time as an axiality

(see fig. 3. 2). This has allowed the philosophical perspective to encompass ontology, epistemology, and social responsibility in one coherent structure.

The work with Critical Realism has demonstrated to be potentially very transformative in the praxis of experimental archaeology, although it was not possible in the remits of this thesis to deepen the understanding of the more recent theories such as the works of Margaret Archer and her morphogenetic approach (1995). These developments could be useful to address interpretation issues in archaeology and experimental archaeology, while in this work the epistemological and gnoseological threads were considered to be more urgent to be mended.

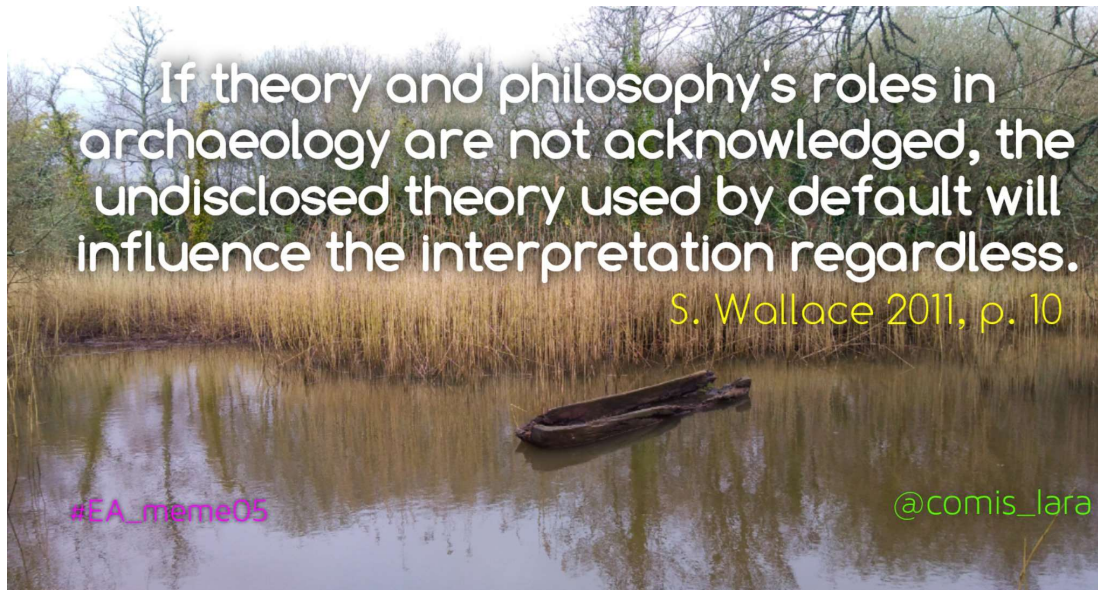


Figure 7.4 Experimental Archaeology meme 05. Picture and meme by author. 10th April 2019. Available at: https://twitter.com/comis_lara/status/1115997832576684037/photo/1

7.6 Mixed Methodology and experimental archaeology

Considering the epistemological hybrid nature of experimental archaeology, a suggestion has been made to re-calibrate it using mixed methodologies. A proposal for

using Case Study methodologies, as utilized in the social sciences, has been illustrated in paragraph 6.3. It is hoped that the suggestion to integrate qualitative social sciences methodologies within experimental archaeology quantitative practice will give birth to a new way of conceiving the inquiry, one that considers every aspect, materiality and individuality included, within the complexity of the epistemological endeavour implied in experimental research in archaeology. It is also hoped that the argument and reasoning has let emerge the real difference between measurability of data and the permanence of them. The qualitative aspect of reality, which is worth of being studied, worth of being interlaced with quantitative analysis, needs to be embedded coherently in the research design from a research ethics perspective.

7.7 Experimental archaeology as a Time Crystal; concluding the exploration.

In the theoretical discussion about the nature of experimental archaeology, the time axuality has been a fundamental perspective to draw a visualization of experimental archaeology practice in society (paragraph 3.5.1). As it was observed, using the assumption of linear time, experimental archaeology practice seems to be characterised by recurrence, by resonance and rhythmic with the distant past, at least from the intentions of the agents (fig. 3. 2). The metaphor of Time Crystals, therefore, seems legitimate. Time Crystals, which were theorised in 2012, form in time the same structural, repeated pattern as real crystals do in space, when observed in the positioning of their molecular components (see endnote 3.26). Experimental archaeology, though, appears to be working on yet another dimension, that of human agency interrelated with material outcomes, on a transversal and rather unconventional axis of time. Thus, its characteristic of “repeating” a section of linear time might prove harmful when that action is performed without awareness of (or at least reflection upon) the social meaning of that action in the present. The danger would be in ignoring the causal and potentially conflictual aspects of that action, and fall, again, into “the Time Wars” which constantly occur in human history. The prospect of using more

advanced concepts of time and quantum considerations from a processual point of view seemed to be promising in the field of experimental archaeology, although this thread could not be developed to its full potential within the remits of this study, apart from some considerations on the order effect during data analysis (paragraph 3.3.3, appendix 2).

The outcomes of the second level coding performed on textual data during the Pilot Case Study might contribute to the suggestion for a new perspective and to further research on the topic of experimental archaeology (paragraph 5.3). They also highlighted, as pointed out above, crucial ethical issues of communication in the perspective of societal considerations, uncovering illusions pertaining to unconsciously perpetrated paradigms. The aspects of transculturality, identity issues, attention to natural resources, empowering people seem to be intrinsically linked with experimental archaeology activities in the field. The impact of AOAMs as transcultural contexts should not be dismissed by academic thinking, but the crucial theme of identity issues should be treated with great ethical care at the same time.

To conclude this exploration, a list of concepts or innovations which this work has attempted to introduce or that were discovered on the path:

- Time as a primary dimension to be considered in a critical realist, multi-level approach to archaeology and experimental archaeology.
- The shift from the simplistic “analogy” to a more complex “way of knowing” that includes awareness of the positionality of the researcher, the ethical and social responsibility issues and moves towards a more defined retroduction or abduction iterative process regarding the interpretation of the archaeological record.
- The awareness of ethical dilemmas which must be faced when dealing with experimental archaeology activities or ancient technology activities in public outreach *and* education (at all levels).
- The awareness of the transformative role of co-participation in the creation of knowledge which unhinges the *ancient regime* paradigm of academic culture

and challenges both researchers and the public to face uncertainty about the outcomes of co-creation.

- The need of constant, cyclical re-evaluation of performance, in both AOAMs and academic research, including internal and external ethics, management, strategic management, and communication.

It is, at the end, in the gap of knowledge, in the abyss of our ignorance that the object of research lies. Archaeology seems to be attempting to re-animate the very old corpses of bygone societies by substitution, and, at best, using as a proxy the researchers' human experience itself, but in the present. The ethical question follows naturally from this: we cannot deny our belonging to our own society, culture, habits and psychology and we are aware of our social responsibility when it comes to the impact of archaeology and the misuse of it for the justification of power, whoever the power belongs to, and wherever we are positioned in "the Time Wars".

Or are we? As Leonard Cohen used to sing, Nevermind³.

¹ "Towards a sustainable R-Evolution. Citizen Science, Experimental Archaeology and AOAMs". The conference will be held in Prague in August 2022. See the EXARC Sustainable Revolution Webpage.

² It must be noted that this process was not initiated by pre-existing observations on the theoretical contexts themselves in archaeology, but rather it took its stance through the resolution of pragmatism as observed in the Social Sciences' similar methodological issues (see paragraph 3.2).

³ Cohen, L. (2014) 'Nevermind', in *Popular Problems*, Columbia.

8

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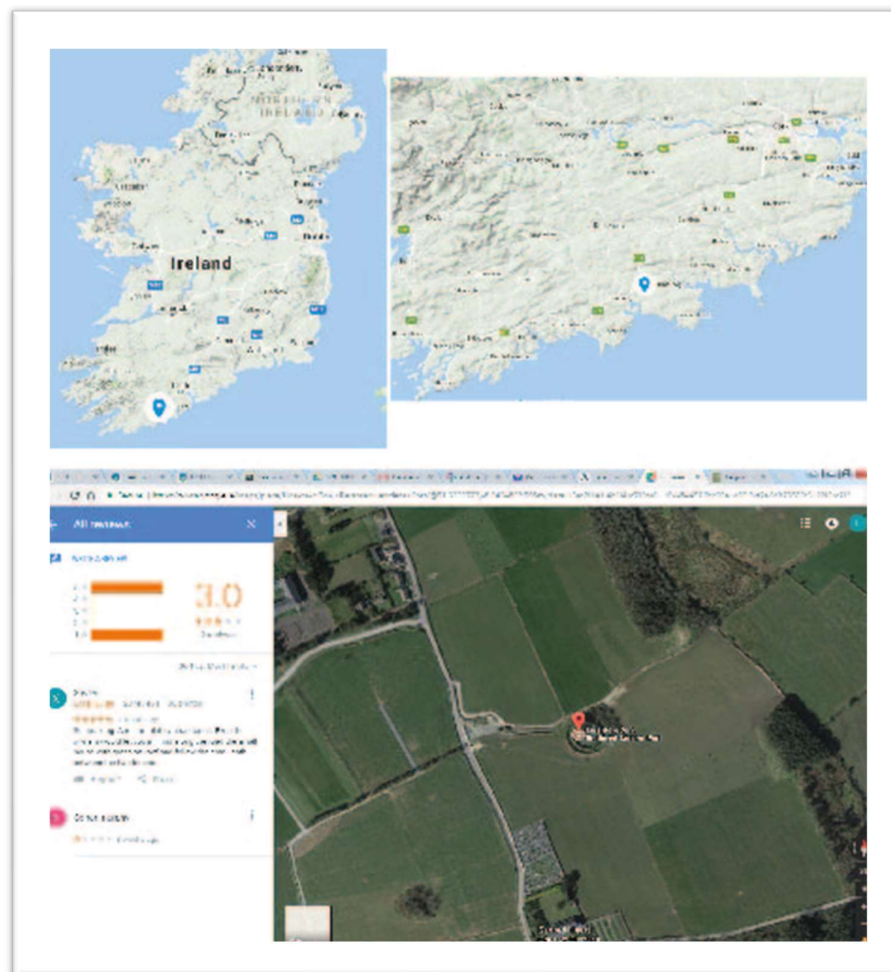
Appendix 1 – Critical Case Study

Critical Case Study: “Lisnagun/Lios-na-gCon” Co. Cork; Managing change through holistic approaches

Lara Comis - 2017

Introduction and Background

This plan aims to implement Lisnagun or Lios-Na-gCon¹ reconstructed ringfort in South west Ireland, County Cork, Clonakilty, Darrara (Fig. 1) using best practices strategic heritage marketing and management. It will follow the guidelines of general corporate strategy (Johnson & Scholes 1993) and examples of sustainable tourism analysis in World Heritage sites (Gilmore et al 2007). The conceptual framework is based on the problems, issues and possible solutions discussed in the international network of Archaeological Open Air Museums (EXARC) within EU policies.



¹ Ringfort of the Hound.

The heritage site: history and current state.

The ringfort and surrounding area is owned by the Clonakilty Agricultural College². The college sits very close to the heritage site, roughly 500 meters along the road. The site was excavated between 1986 and 1989 and (re)constructed just after the investigations finished³. The site itself consists in a bank and ditch circular earthwork with a wooden palisade and gate on top of the bank. The inner part, over 33 meters in diameter, has a reconstructed roundhouse and a reconstructed souterrain. The access path to the site starts from a parking space in an enclosed area just on the side of the main road. A small building (possibly an entrance, ticket counter) lays on the east of the parking space and leads to a pathway. A stroll of roughly 250 meters (initially in a seemingly paved path and later on the green) leads to the entrance of the ringfort, set on the south east side of the circular earthwork (fig. 2).

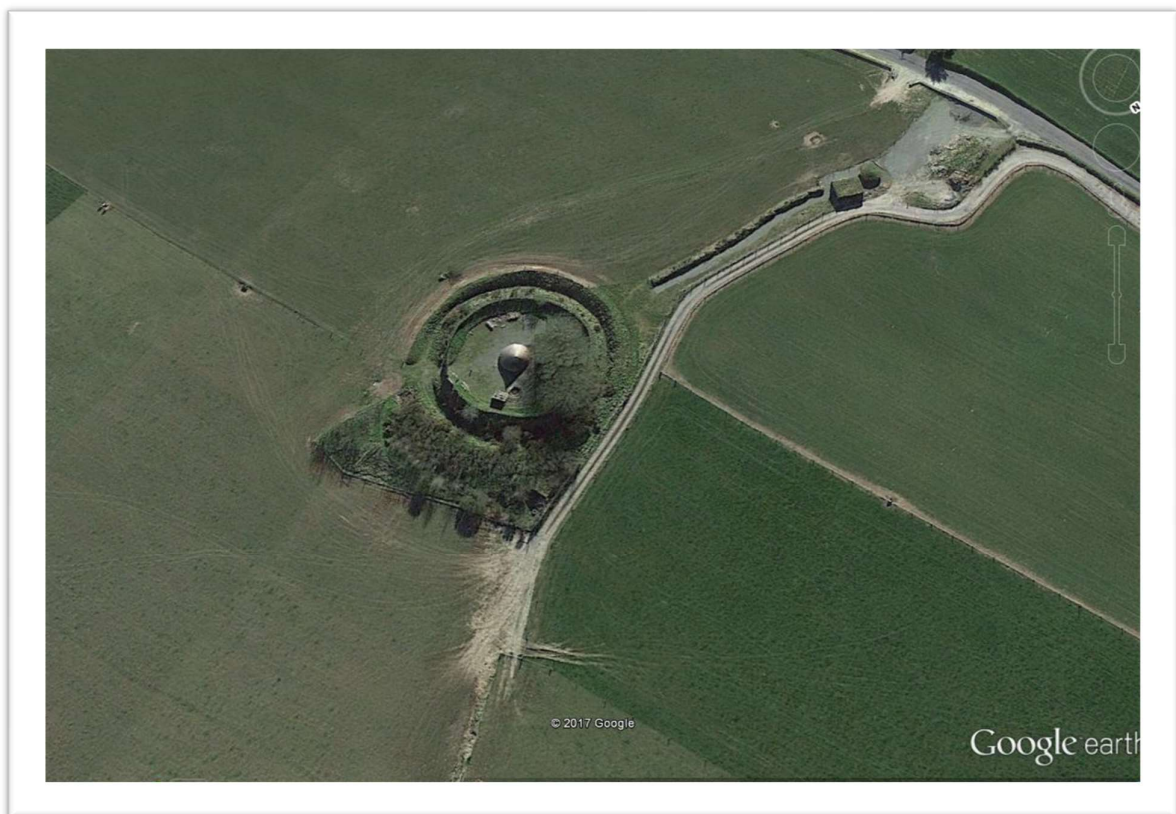


Fig. 2 Lisnagun/Lios-na-gCon on Google Earth, view from N/NE.

The joint institutions, the numerous volunteers and some professional archaeologists as well as higher education institutions participated in this project. After the first enthusiastic years, some institutions withdrew their interests and the site experienced change in its management and

² Clonakilty Agricultural College website: it hosts almost 250 students per year and has a hands on approach to learning thanks to the agricultural land of the college farm.

³ O'Sullivan 1990; O'Sullivan et al. 1998; Kern et al. 2009; Harte 2015. It is remarkable that the archaeological excavation had reconstruction as its primary aim.

name⁴. Later, the management of the site appeared to be run by a local volunteer association (“friends of Lios-na-gCon”) which successfully involved a living history group to communicate the life of the ringfort during special opening events until 2015⁵ (fig. 3).



Fig. 3 Living history group entertains the visitors of Lisnagun with medieval storytelling in 2015 (source: Lios-na-gCon facebook page).

The original website for the initial project (Lisagun) is not available anymore. The Facebook page of the volunteer association seems to have stopped working in 2015. Literature is scarce and only a contemporary social media research could provide information about the current state. Today, the site seems to be completely abandoned. Even so, visitors carelessly enter the site at their own risk (the souterrain being probably dangerous) while posting pictures on geographic web services thus reinforcing the bad promotion of the site. The site is included in Tripadvisor, and the reviews are particularly interesting in that they show irregular openings and opinions are varied. One visitor admittedly wrote to have entered the site despite it was clearly closed: “This did not stop us from climbing the small fence and the gate to the ring area is open⁶”.

Feedback about the heritage site in social media is generally very positive. Both the Facebook page and the attraction reviews on Tripadvisor clearly indicate the general desire for the site to open again soon.

Methodology

Since this report was meant to be a critical case study for a strategic heritage management plan, a SWOT was elaborated on the base of the following research points:

⁴ Information about management change and the underlying issues is not easy to understand with available resources.

⁵ Lios na gCon Facebook page.

⁶ Tripadvisor reviews on Lisnagun/Lios-na-gCon.

- Analyse potential for the educational and touristic mandate of the heritage site
- Detect nature and involvement of existing and potential stakeholders
- Analyse Regional and National tourism marketing trends and related tools

SWOT of Lisnagun/Lios na gCon.



Internal Strenghts

Lisnagun/Lios na gCon Reconstructed Ringfort is a very interesting heritage site. From the conservation perspective, it belongs to the reconstructions *in situ* which still are much debated among scholars⁷. It has to be pointed out, though, that the archaeological exploration of the site was planned since the beginning with the purpose of reconstructing the settlement⁸. At the time, the Cork Archaeological Survey revealed that 40% of similar archaeological sites had been destroyed⁹ by agricultural and development works. The birth of this heritage site, owned by the Teagasc Agricultural College in Clonakilty, was therefore a message to promote and preserve similar sites across the area. The project was run and initially funded by the Clonakilty Macra na Feirme, a

⁷ See the study by Masrera i Esquerra 2007 which explores the visitor's perceptions regarding ruins versus reconstructed heritage sites.

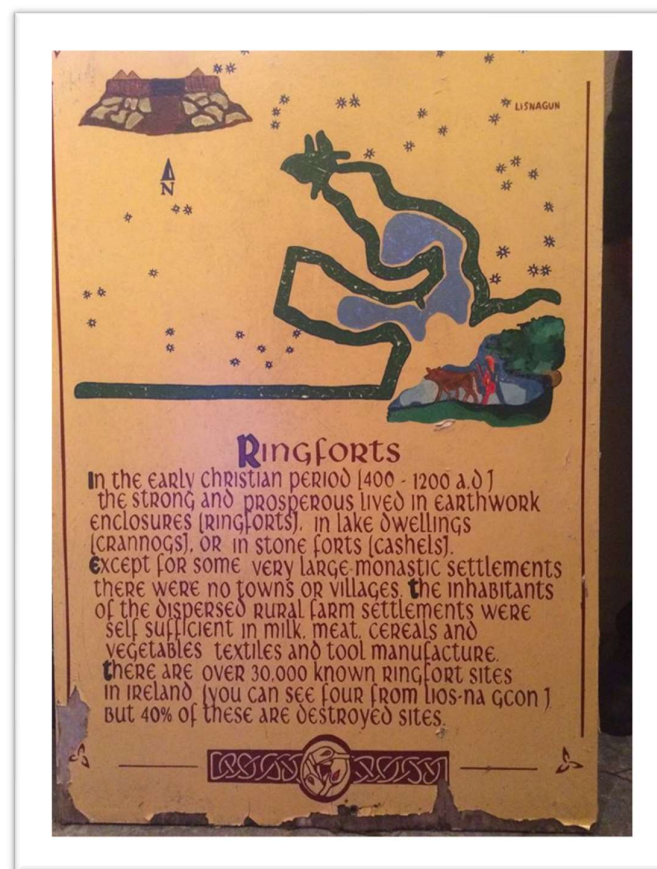
⁸ Harte 2015, p. 213.

⁹ O'Sullivan 1990, p. 25.

volunteers association which deals with many aspects of social life in the country. The association won the National Bord Gais/An Taisce environmental competition¹⁰ for the Lisnagun project.

The premises of such a conceived site, with the actual participation of local volunteers, the agricultural college students, archaeologists and the local interest group were remarkable. The educational mandate of the site was recognized early, with a strong environmental and archaeological perspective. The touristic side of the heritage centre seemed to be left out of the main plan for the future, but O'Sullivan (the only person who published about the project at the time), clearly states it was an acknowledged potential¹¹.

The heritage site belongs to a very well-known category of humanized landscape features: the ringforts. Ringforts were medium-large enclosures with palisades and dwellings and constitute one of the most representative settlement patterns in early medieval times (more than 40.000 were recorded in Co. Cork)¹². Self-sustainability of these kind of settlements, which can find sufficient confirmation in the archaeological record, was promoted at the very beginning of the project (fig. 4).



¹⁰ O'Sullivan 1990 p. 23.

¹¹ O'Sullivan 1990 p. 25, quoted also in Harte 2015 p. 215.

¹² Harte's study (2015) highlighted the distribution of these sites in the Clonakilty area within the wider South West Cork landscape (see Harte 2015, fig. 1 and fig. 3).

Fig. 4 An old panel of the initial Lisnagun Project which shows attention to the humanized landscape as well as to self-sustainability (source: Lios-na-gCon facebook page).

Internal Weaknesses

Despite the peculiar and interesting kind of heritage site, of which other examples exist in Ireland¹³ and are accessible to visitors, the site seems to be abandoned. The old website for the Lisnagun Project is no longer available. The lack of management is evident in online feedback from visitors who promote illegal access and underline the risk of potential damage and health and safety issues. There seems to be no information whatsoever on the current management of the site, it seems as if the only active group in its regard, providing exceptional events openings, was the local volunteer group. From an academic perspective, there is a gap in the publications regarding the site which, apparently, stirred quite a lot of attention in scholars at the time of its investigation and construction.

External Threats

The consequence of this situation, which cannot at present gain more accurate information, is the actual risk of health and safety incidents which may occur in the heritage site. The involuntary bad promotion of the site is also happening with no control whatsoever and hinders its possible future. The serious aspect of this uncontrolled virtual image of the site is the promotion of illegal actions which could result in damage to both the heritage site and people involved with grave consequences for the owner.

External Opportunities

The heritage site is very close to one of the National Tourism Agency (Failte) major themes routes, The Wild Atlantic Way¹⁴, specifically at the southern end of the route within the Haven Coast area (Fig. 5). The vocation of the route explores especially natural attraction amenities and dynamic tourism, promoting local traditions and food. Historical sites are present in the route but not to a great extent.

¹³ Craggaunowen, Co. and at the Irish National Heritage Park, see below.

¹⁴ Wild Atlantic Way Route online.

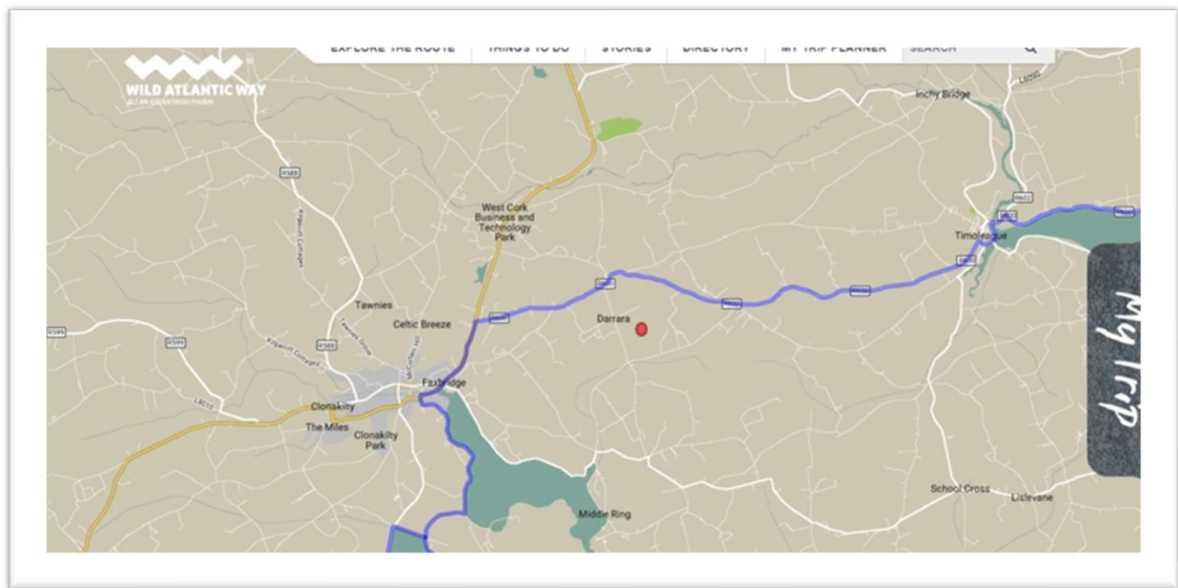
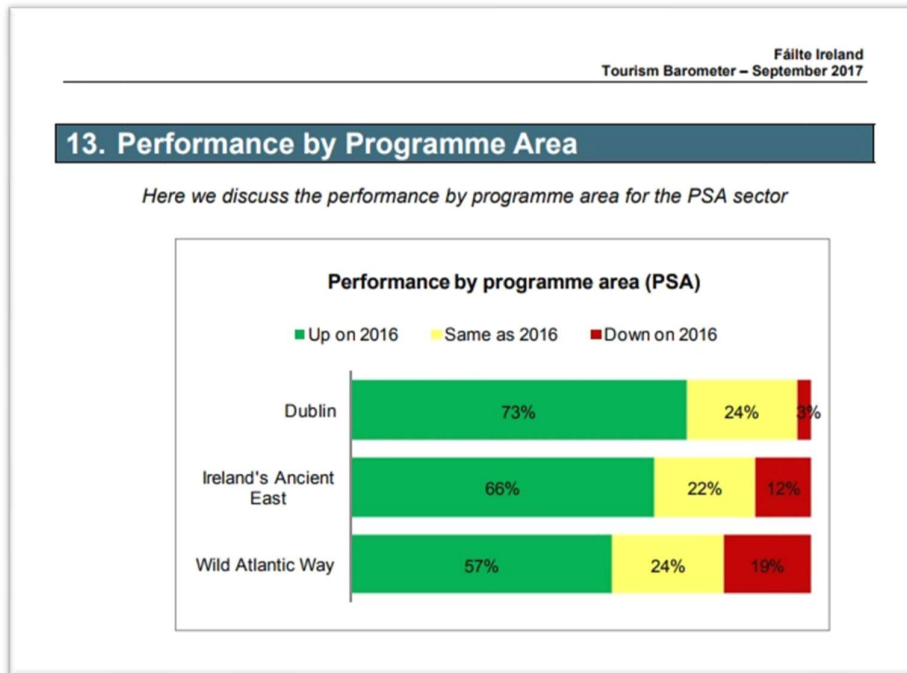


Fig. 5 Location of Lisnagun across the Wild Atlantic Way route in the Haven Coast Area (Co. Cork).

The distance from the route is less than one kilometre. The position of the site and the dynamic approach to visiting could provide a small diversion with all the transports possibilities and also for trekking (car, bike, walking).

The Failte tourism barometer for performance by programme Area in September 2017 shows that the Wild Atlantic Way experienced a loss of performance up to almost 20% compared to 2016. There is space, therefore, for implementation of the programme theme.

In county Cork the Wild Atlantic Way meets the other thematic route within the National Tourism



agenda (The Ancient East). The transformational power of these themes issued by Failte pushed the local community to develop a five years long collective strategic plan¹⁵. The plan aims to “create sustainable growth by developing responsible tourism across Cork” while providing excellence within the national themes and create significant revenue (Cork Tourism plan p. 11). The tourism market segmentation provided three main targets:

- The culturally curious
- The social energisers
- The great escapers

In the general SWOT of the Cork strategic plan, one of the most important in the frame of this project is the need of “iconic tourist attractions” (fig. 6, Growing Tourism in Cork p. 9).

The heritage site could be transformed into an iconic attraction for tourists because it visually represents a typical feature of the ancient landscape of Ireland. Other examples, which can be defined Archaeological Open Air Museums (AOAMs), provide such iconic images to ultimately determine a landmark, such as the exemplar case of the Scottish Crannog Centre (UK) while engaging directly with the local communities. They are non-profit organization and the visitor affluence cannot be compared with other kind of museums.

¹⁵ Growing Tourism in Cork. A Collective Strategy, 2016

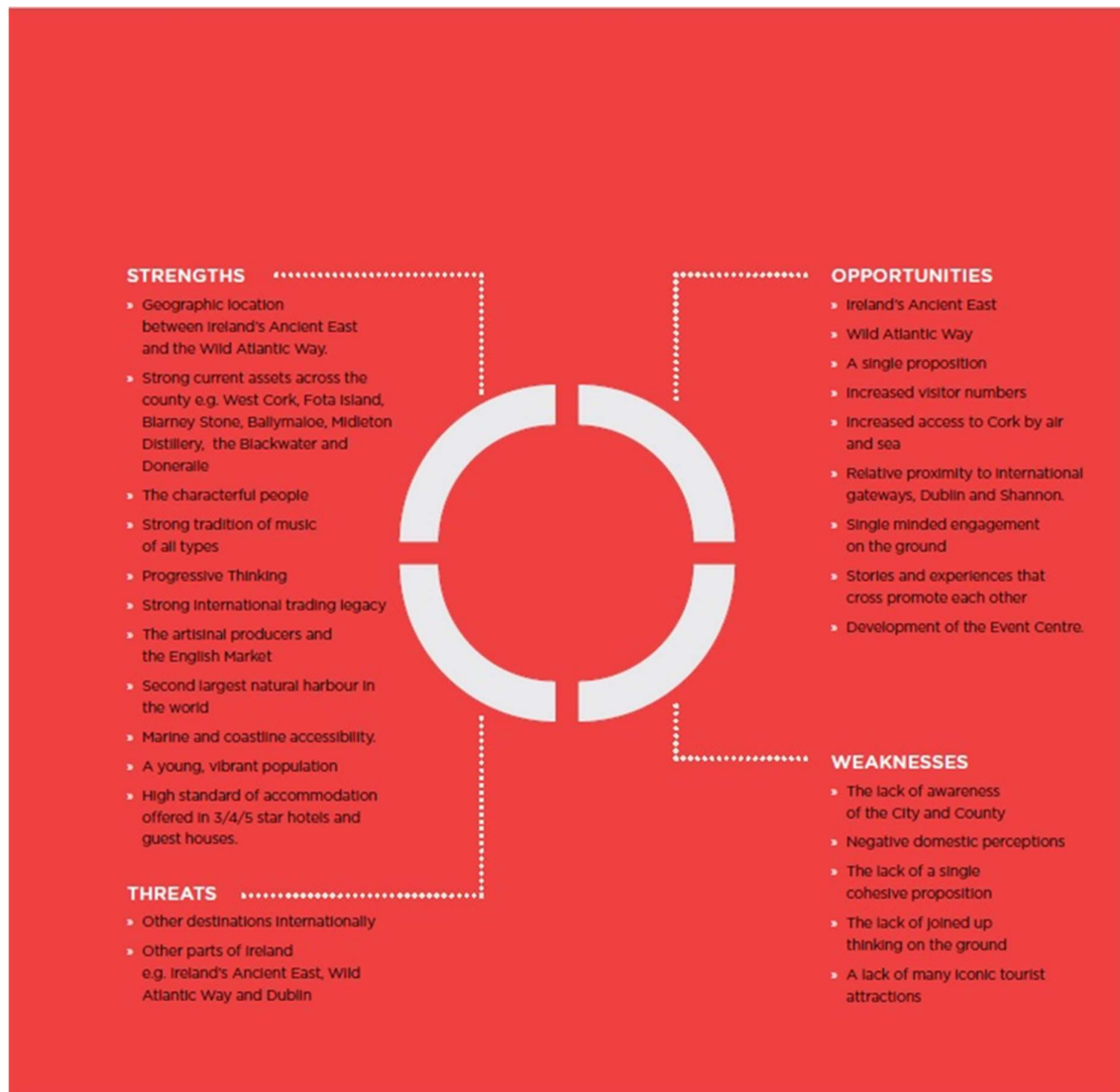


Fig. 6 Growing Tourism in Cork collective strategy SWOT. Among the weaknesses “lack of many iconic tourist attractions”.

Finally, Clonakilty has a strong vocation in addressing with creativity sustainable tourism and civic responsibility issues. Having entered in one of the most first 100 sustainable destinations worldwide¹⁶ has also developed interesting activities such as Ireland's first rural community bike rental scheme¹⁷. Together with excellences in food and cultural events, these aspects are very useful in the framework of a strategic plan in sustainable tourism and community life.

¹⁶ West Cork Times, 15/11/2017: <https://westcorktimes.com/clonakilty-among-the-top-100-sustainable-destination-in-the-world/> (accessed on 5/12/2017).

¹⁷ See the webpage of the programme: <http://www.clonbike.com/?s=about> (accessed on 5/12/2017).

The strategic plan: analysis

The Lisnagun project is a particular case within heritage sites because it was born directly from the local community. Even if the birth of this site is somewhat different to many other national and private heritage sites, it shares many of the issues involved in the actual management of those sites. The analysis of the Giant Causeway case, carried out some years ago (Gilmore et al 2007) highlighted the complicate relationships among local stakeholders and the consequences of a lack of joint management of the whole touristic market. In detail, the conservation of the site itself and the lack of adequate skills involved in management proved to be the core of the problems which affected the Giant Causeway touristic phenomenon. In other words, the purposes and aims of the different stakeholders and service providers in the areas were diverging at such extent that they were actually seeing each other as competitors, instead of integrating their offer to the visitors (Gilmore et al 2007 p. 260). If it is true that most of the problems were those of actual conservation of the outstanding natural landscape, no proper communication to the visitor was provided to ensure a responsible touristic behaviour. In the Lisnagun case the problem of conservation was overcome during the initial planning by a daring view: the site was almost totally destroyed with the archaeological excavation anyway, and no further damage was to be caused by the actual reconstruction (O'Sullivan 1990 p. 23). It was also made very clear that the reconstruction was not meant to represent the actual state of the original site in the past, but was meant to give a "reasonable impression in authentic materials of what the site could have looked like" (O'Sullivan 1990 p. 24, quoted also in Harte 2015 p. 214). The educational mandate implied in this perspective leads out of major conservation issues for the site. The similarity with an example like the Giant Causeway one is in the position and role of the stakeholders involved. As it is evident from the account of the two years during which the excavation and the reconstruction took place, the stakeholders involved began to lose their enthusiasm once the actual investigation of the site was on its way (ibidem). At the time, the local volunteers participating in the project, who also funded the entire operation, were disappointed by the time consuming and slow, and possibly difficult to grasp scientific investigation. As in the Giant Causeway case, the scientific and more traditional approach began disappointing local community expectations and enterprises. Great effort was put in action from the professionals¹⁸ involved to provide a solid understanding of the investigation quality and the scientific outcome of research, even if, one might argue, it looked as if they were actually trying to justify the whole project in the eyes of traditional academia. The conference about archaeology and reconstruction carried out at the University of Cork in 1989 seemed to address the problem more to the higher education institution than to the general public. It has to be underlined here that this conference is one of the earliest carried out in Europe regarding this theme and that no literature is available anymore.

The "bottom up" approach clashed in this case with stakeholders who usually provide credibility and reputation to the heritage site, a very common aspect of similar projects across Europe. The credibility a higher education institution can provide by approving the archaeological heritage

¹⁸ The key role of this kind of professional involvement, dealing with one side with the local community and on the other with higher educational or government institution is typical of the archaeologist, although it is not recognised in the major role of cultural mediator. I used this term to describe the professional position needed in the strategic plan, meaning someone who understands deeply the nature and involvement of the different stakeholders and the heritage value of the site and delivers management directions for building a healthy management structure for the local community.

communication is crucial also in the opposite case, the “top down” foundations¹⁹. The vocation of the heritage site which did not have other scopes than that to provide an actual physical visualization of historical landscape landmark of the area, and which did not aim in becoming a touristic attraction *per se*, but was primarily meant to serve the local community and especially the Teagasc students, the local volunteers and the local inhabitants, was suffocated by lack of long term management planning and by the stigma of the academic environment.

Best practices

The Lisnagun site was born to be a non for profit institution linked with the archaeological record devoted to educational and recreational aims. In other words, it had the potential to reach the status of an Archaeological Open Air Museum²⁰.

Archaeological Open Air Museums (AOAMs) have a direct link to the archaeological record and are a "major presentation tool for archaeology" and, across Europe, they attracted 6 to 7 million visitors per year in an extensive survey (Paardekooper 2012, p 23 *passim*). The visitors of this "new" kind of museums are usually not reached by other kind of museums (*ibidem*). In other words they capture the visitors segment who is in search of "experiences" rather than products, as defined in recent rural tourism studies (Saxena 2016, p. XII). The nature of the AOAMs provides the visitors with a "full senses involvement", with experimental reconstructions of archaeological or historical buildings and use primarily live interpretation to communicate with the public (Paardekooper 2012 p. 23). There are two main examples in Ireland²¹, currently, of similar heritage sites open to the public. One is the Irish National Heritage Park²² in Ferrycarrig, Co. Wexford, where the national heritage is communicated to the visitor through reconstructions and direct link with the archaeological site and sustained by Failte; the other is Craggaunowen²³, in Co. Clare, run by the Shannon Heritage DAC which has developed a unifying brand for the experiences they are offering to the visitors (the Living Past). Shannon Heritage's mission meets some of the main point for sustainable tourism:

‘To develop, manage and operate commercially sustainable products and related activities by providing heritage experiences to international standards utilising our natural and built environment. The company recognises the need to achieve a balance between its custodial/curatorial role and the need to operate in a commercial environment.’ (Shannon Heritage Custom Service Charter²⁴).

Another good example of AOAM which has recently been accredited Full Museum status by the local authorities, is the Scottish Crannog Centre, in Perthshire, Scotland (UK)²⁵. This very unique and small AOAM had the ability to develop a successful management and reached a high standard

¹⁹ See for example the case of Montale (IT) in Paardekooper's work, 2012.

²⁰ See the 2009 definition of these as accepted by ICOM in the EXARC website. Their management structure is No Profit.

²¹ For a wider perspective on reconstructions in Ireland, see the work of Sørensen and O'Sullivan 2014.

²² Irish National Heritage Park website.

²³ <https://www.shannonheritage.com/Craggaunowen/> (accessed 4/12/2017)

²⁴ <https://www.shannonheritage.com/UsefulInformation/About/CustomServiceCharter/> (accessed 4/12/2017)

²⁵ See the specific section in Paardekooper 2012. All the recent information on the AOAM was collected from their website: Scottish Crannog Centre Website.

environmental and landmark importance. The site itself as turned out to be an iconic image (fig. 5) for Scottish Tourism and during the years has reached important awards in sustainability and visitors feedback:

“Trip Advisor Certificate of Excellence 2014 - 2016
Greenest Visitor Attraction in the UK & Eire 2013-2014
Visit Scotland Five-Star Visitor Attraction since 2005
GOLD Award Winner for Environmental Best Practice since 2004
Most Enjoyable Visitor Attraction in Perthshire
Vision in Business for the Environment of Scotland (VIBES) Award
A Civic Trust Award
Investors in People awards
Visit Scotland's Scottish Thistle Award for Small Business Marketing
2006 Highly Commended National Business Award for environmental awareness.”
(Scottish Crannog Centre Website).

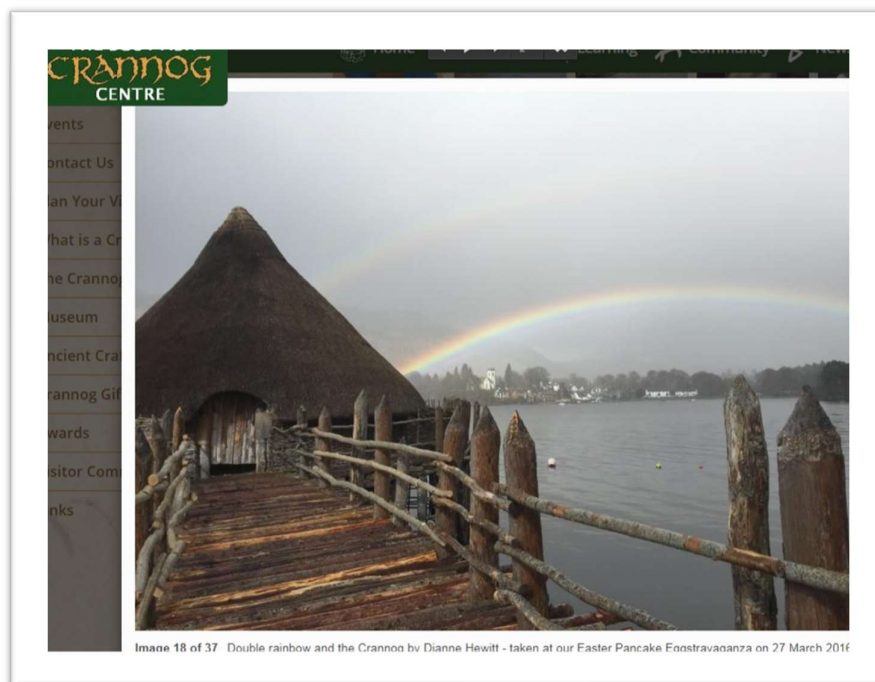


Fig. 5 One picture of the Scottish Crannog Centre taken from the visitors' gallery in the website. Note the balance between the logo and the information given on the picture itself.

The AOAM museum typology is highly varied. The dimension and impact of Lisnagun might not be relevant in the short term, and generated income in surrounding areas is rarely measured in this specific form of NPOs. Their impact fulfils a specific market segment which could be considered to be a niche. The economic value, in this case, is not the primary goal to achieve. Sustainability and balance is necessary to provide a long term life in similar heritage sites. The philosophy of excellence in successful examples disengages with competition thanks to the uniqueness of the service provided and the nature of the experience involved. Lisnagun, to develop its potential as

an AOAM needs to develop by subsequent steps which will increase in meaning also economically during time.

On the base of successful European examples and best practices in strategic management this project was designed to:

- Transform the heritage site into an Iconic Tourist Attraction in the Wild Atlantic Coast route within a sustainable tourism framework with a branding campaign and a web promotional campaign.
- Re-build the link between the heritage site with the local community by involving directly the Teagasc students in the branding (logo) design and the teachers for educational activities design; interlink with local volunteers groups for urgent maintenance work.
- Design an event during the high season to involve all the visitors segments with both promotional and evaluation purposes.

STRATEGIC PLAN COST/BENEFIT AND TIMELINE

It is unlikely that the heritage site can develop into a fully accessible tourist attraction on the short term. This intervention would probably mean consistent funding in one time only and the need to import workforce in the area to accomplish the full accessibility of the site. Such an intervention, proven the affection of the locals to the site, could be detrimental to the local community and will ultimately transform the site into a “tourist attraction” with no local involvement. The approach here planned, instead, tries to build on and train the workforce directly in the local community on the base of a long term project with a reasonably low cost commitment distributed over time. The investment is not on the physical asset primarily but on the human resources available on site. Please see below for the budgeting and finances. The strategic management plan foresees five years during which different actions will take place.

1. The first two years will be dedicated to the creation of a deep involvement of the local community, first with a **branding campaign** followed by a **new social web marketing campaign**. The importance of a branding campaign is highlighted and strongly needed to recover a public recognition of the heritage site²⁶. The brand will be used in the social web marketing campaign as well as to **signpost** the heritage centre both on site and in nearby roads (Paardekooper 2012 p. 283). The brand will define the **unique experience** selling point (Briggs 2001 p.59) and will also launch the trademark for future experience of the site’s visitors. Again, an external intervention could prove detrimental for the link with the local community, so the brand will be **designed by and selected by the local community** itself and in detail by the students of the Teagasc²⁷.
2. During the branding campaign, a collaboration with the teaching cohort of the Teagasc will build the premises to **select and develop the themes to be used in the communication of the site**²⁸. The professional to be involved here responds to the cultural mediator role, who can reassure about the credibility of the history and archaeology of the site as well as

²⁶ OpenArch PR Handbook, 2013.

²⁷ Details regarding the heritage communication/interpretation plan can be found on a separate document especially dealing with this crucial aspect. Here only the basic relationship structure is highlighted.

²⁸ This activity was inspired by “Community Archaeology”, as defined from an archaeological perspective in Moser et al 2002.

training the teachers themselves to **plan educational activities on site for their students**. This will also allow a better **understanding of the maintenance costs** and of the actual workforce needed to ensure accessibility and safety.

3. Once the brand and the content of the first social web marketing campaign will be outlined, the campaign can be carried out either by a professional PR or directly by the Teagasc.
4. The first year's activity will then move to plan a **special opening event** during the summer²⁹ which will call to the **Clonakilty local committee and local sustainable services and products**. The event will be the initial **occasion to grant accessibility and emergency maintenance** of the site. The event is also crucial to **evaluate the performance** of the marketing and educational campaign and to **collect visitors' feedback** for further improvement. Clonakilty local committee will be stimulated to build a **measuring campaign for generated income** in the area during the events.
5. The intervention of the mediator in the second year will change into a sporadic consultancy and monitoring.
6. If the campaign is successful, during the third year a new management of the site can be evaluated in the shape of an educational AOAM employing local resources.
7. If the transformation is successful, the last two years will be dedicated to implementation and self-sustainability of the project within a European framework.

Project scheme with progression

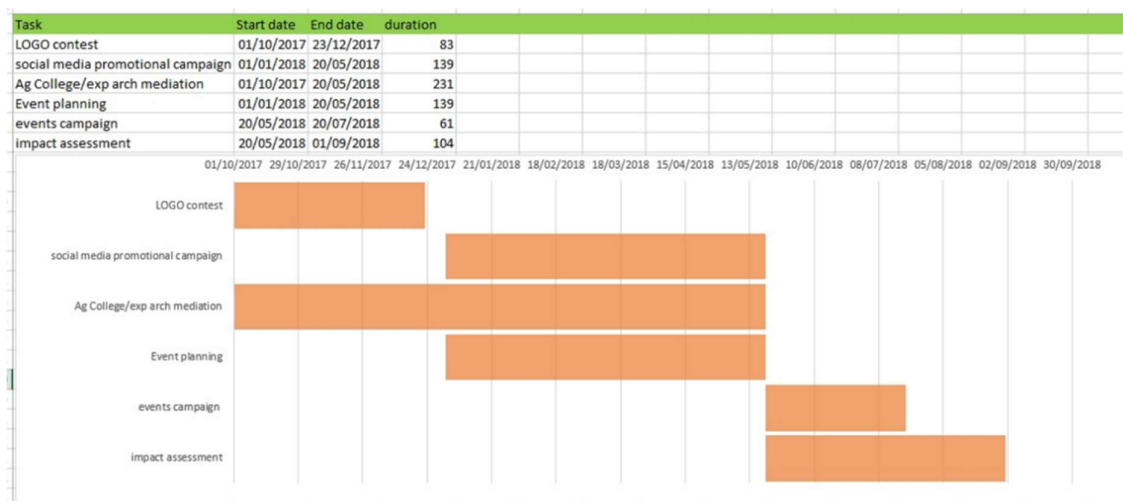
Year 1	Year 2	Year 3	Year 4	Year 5
Branding				
Web marketing	Web marketing	Web marketing	Web marketing	Web marketing
Educational training	Educational consultancy	Management consultancy	Management consultancy	Evaluation of self sustainability
Health and safety cost evaluation				
Event	Event	Event	Events and special openings	Seasonal opening evaluation
Emergency actions	maintenance	maintenance	implementation	implementation

²⁹ AOAMs' visitors usually perform their visit in the warm months, especially from May to August (Paardekooper 2012 p. 238, fig. 7.03). The percentage of repeated visits recorded in the survey was above the 12% (idem p. 242, fig. 7.07), an interesting figure when intersected with geographic provenience which proved to be from national visitors (p. 246, fig. 7.12) and mostly belonging to family/couples visitors (p. 249, fig 7.15).

Project Diagram* for the first two years

BRANDING CAMPAIGN (first year only)	EDUCATIONAL MEDIATION/TRAINING (first year only. Second year consultancy)	SOCIAL WEB MARKETING CAMPAIGN (permanent activity)	EVENT (yearly)
Logo contest within Teagasc	Training for the teachers of the Teagasc	Brand promotion	Planning with multiple stakeholders
Logo selection	Design of educational activities for the students on site	Themes promotion	Design of assessment tool for the visitors
Signposting	Selection of themes for heritage interpretation	Event promotion	Assess a measurement campaign for generated income in the surrounding area
Professional PR design	Evaluation of health and safety mandatory works	Fundraising and sponsorship	Assess possible management long term structure

*The gradient filled fields involve both an external professional both the local community. The light colour filled ones rely on local human resources. The darker ones rely on external professional consultancy.



Gantt chart for the first year (simplified, and considered active since the beginning of September).

COSTS

A proper evaluation of the project would need a deeper knowledge of the current market and prices in Ireland which I do not currently possess.

All the activities in the project should be broken down to their relevant aspects in the perspective of evaluation and checked against the contract typology and tax analysis. It suffices here to summarise the first two years of activities, assess a possible workforce and evaluate them with exaggerated approximation of the actual costs. In the table below the first two years of activity have been taken into consideration and priced. Please note that the estimated costs were not calculated on the base of publicly available information in Ireland.

Year 1-2	Estimated cost	Estimated workforce
Initial setting up costs	€ 1.000,00	1/2 people
Social web marketing (includes design)	€ 30.000,00	1/2 people
Educational training and consultancy	€ 16.000,00	1/2 people
Urgent maintenance	€ 30.000,00	?
Event (includes planning and actual costs)	€ 20.000,00	4 people
Total	€ 97.000,00	

The funding for the initial part of the project, which aims also to assess the generated income in the area and the visitors' feedback for a more structured management of the site, could be granted by a variety of sources. Particularly interesting in this regard could be the list of funding agencies provided within the Failte Ecotourism Handbook³⁰ (p. 35-49), as well as wider funding opportunity within Failte. Even so, also other funding opportunities might be available in the local Clonakilty area as well as in the Cork area, following the collective strategy plan for sustainable tourism mentioned above. Only if the project could evolve into a more long term management of the site by landowner (the college) or by another structure, the outcome in terms of local employment and revenue could be estimated. The nature of a NPO, in any case, would mean that the returning value will not be in terms of economic value primarily.

Conclusions

This project was structured as an emergency action to recover a potential iconic tourist attraction within the Wild Atlantic Coast route by reconnecting it first within the local community, considered as a critical case study. Before a plan like this could be performed, a deeper knowledge of the nature and the characteristics of the stakeholders involved would be crucial. The educational potential was very important in this example: the educational training to be performed with cultural mediation on the teaching cohort in the local Agricultural College, owner of the heritage site, could provide a meaningful response for a long term project. Such an approach, which could be defined "Community Archaeology", could also be part of a specific integrated rural tourism strategic management (Saxena 2016) into Cork Sustainable Tourism Collective strategy.

³⁰http://www.failteireland.ie/FailteIreland/media/WebsiteStructure/Documents/2_Develop_Your_Business/1_StartGrow_Your_Business/Ecotourism_Handbook-2.pdf (accessed 5/12/2017).

Since the heritage site as envisaged in the project could turn into a NPO institution, it will not sell only gadgets and hot drinks in a nice setting. It will provide the visitor with experiences which build their value on tangible and intangible aspects of heritage and rural setting.

The strong sustainability vocation of the Clonakilty area would find in Lisnagun a “new”, iconic and meaningful destination which relives a typical Irish historical and archaeological landscape. If the heritage site could be managed as a small AOAM like the Scottish Crannog Centre, it would be ready for international recognition and could profit from the EXARC³¹ international network exchange and opportunity for a socially and environmentally friendly growth.

Even if the impact of the transformation of the site will not immediately produce local employment and revenues, the educational impact and the iconic value of such a site could be measured and evaluated in a wider perspective. Generated income is rarely or almost never taken into account when dealing with “financial problems” of NPOs such as AOAMs or during events held in such premises. Providing a measuring tool for the generated income of such realities could also open a perspective for unseen stakeholders’ financial future investment.

While outlining possible ways of strategic cultural mediation and planning, this strategic management plan was designed to create an educational local facility, a national iconic tourist attraction and an Open Air Archaeological museum (all in the same spot) within a sustainable approach.

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³¹ <https://exarc.net/>

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10

Appendix 2 - Mixed methodology experiment design

Mixed methodology experiment design (following the ARCH40850: Practical Experimental Archaeology pilot experiments) SHARED WITH BRENDAN O'NEILL 13 MAY 2018.

Lara Comis

Abstract

During the experimental archaeology in practice module (module coordinator Dr. Brendan O'Neill), a pilot experiment was carried out on the endurance of crucibles in an industrial hearth from archaeological finds dating to the VII-IX cent. AD Ireland. The main variables under scrutiny were different types of inclusions in the clay body of the crucibles. The test aimed to assess their technological performance to reach the melting point of bronze. The work was coordinated by Dr. Brendan O'Neill and carried out, both in the practical and the data analysis and report, by the students of the MSc in Experimental Archaeology and MA in Archaeology. In this report I summarize the data and outline a research project with mixed methodology to further the research based on the work done during the module.

Introduction

The technological gap between us and the past is wide and complex. The archaeological record of Ireland can sometimes be misleading if interpreted in a traditional archaeological perspective. More than in other countries, because of the climate and the nature of the archaeological deposits, the lack of findings cannot be considered lack of activity. The distance is very well symbolized by the artefactual remains that are testimony to a highly skilled metalworking technology, the work of a "virtuoso" cohort. Yet, knowledge on the archaeology of production of these object is scarce. Moreover, the archaeological interpretation of both excavated structures (industrial hearths and similar) both of artefactual indicators belonging to the different phases of the *chaine operateire*, is not developed enough. The consequence of this leads to a scarce and conjectural knowledge of the actual production processes (fig. 1).



If our interpretation is based only on finished objects, or individual fragments of technical ceramics or metal slag, rather than on the process that created them, we need to rely on heavy assumptions for assessing their social meaning.

In the work previously made, I set my attention to the fruits of interaction between the cycles of production entangled in the production process, identifying them as prominent indicators of the metalworking activity, rather than attempting to analyse the complexity of the entanglement of “things”. In other words, I addressed the indicators that are attested in the archaeological record such as moulds, moulds fragments, burnt features and crucibles in the clay cycle, and of blanks, ingots, slag formations, frozen metal and, of course, brooches, in the metal cycle. This suit of artefacts shares a common causation process. They are all “created” when metal gets in contact with clay. This “contact” can either be “cold” or “hot”, but in any case, both two elements are transformed by this contact. The final artefact is just the end-product of a sequence which involves human actions and thoughts. The entanglement of cycles of the main elements involved in the metalworking process are caused by an active and conscious use of the transformative processes by human action and can return important insights for interpretative perspectives.

I refer to “clay” and “metal” as elements, and not “things”, because their nature is transformative, something like the three statuses of water, but applied to other matter. The human action developed technology by understanding and directing these transformations of elements. The use of the term “element” can also be considered an homage to the ancient mind, and could drastically give new perspectives in archaeological interpretation, especially in the archaeology of production. I believe that this perspective is worth a try, rather than uncritically applying the standardized western profit-bound and economic interpretation patterns.

As previously said, I chose to focus on these indicators because the interlaces of clay and metal cycles transform both elements, and not just one. Mannoni and Giannichedda (1996, p. 77) defined these moments of interaction between cycles as “transformational activities”. This transformation was known to the metalworkers in early medieval Ireland. The fruit of this interaction is a production “node” in the *chaîne opératoire* and is attested in the archaeological record. Due to their nature, both clay and metal possess a high degree of sustainability, i.e. can be recycled. This

is why the intermediate passages between the indicators tend to leave scarce and faint traces in the archaeological record, or they undergo a biased interpretation.

By focusing on the gaps existing in the reconstruction of the entire production sequence (the missing links between the “nodes”), we can identify technological processes which need to be experienced and experimented in order to return useful data to the archaeological interpretation of early medieval Irish Society. Experimental archaeology is the optimal tool to do that, when the attention is systematically set on a gap of knowledge in the production cycle (Mannoni, Giannichedda 1996, p. 249).

If we were to set this theoretical approach in terms of entanglement, we are abandoning the interpretive conundrum and adopting a quantum-leap forward³² by tackling the nodes of mutual transformation of materials which are part of the hard sciences but approached from ancient technology perspective. It has to be clarified that the process under scrutiny is indeed an entanglement but refers strictly only to the cycles that experience mutual transformation, thus relying more on the quantum perspective, rather than trying to assess a deterministic approach.

In terms of methodology, this approach uses both quantitative and qualitative perspectives, acknowledging the existence of measurable and unmeasurable variables in the process under scrutiny. Thus, the experiential observations and subsequent actions are finally taken in consideration together with measurable variables.

THE EXPERIMENT

The pilot experiment was approaching the complexity of the *chaîne opératoire* principles through different stages. First the modelling of the crucibles themselves, a pure clay cycle. Whereas the shape under scrutiny was the same for all samples, the variables to be assessed were the different types of inclusions in the clay. Nine exemplars were made belonging to the classes of no-inclusion, bone ash inclusion and heated and crushed quartz inclusion. These crucibles were then fired in an electric kiln at 750 °C for three different intervals, 4, 6 and 8 hours respectively. After this stage, we moved to consider the industrial hearth structure, based on the archaeological record and its interpretation. This was a parallel pilot experiment to assess the performance of different interpretations of burnt features in the early medieval archaeological record and the positioning of the associated tuyeres. This experiment resulted in the construction of a low shaft bowl furnace with a horizontal tuyere operated with two bellows to provide optimum performance and adherence to the archaeological record (fig. 2). The chosen feature allowed the best performance in reaching the melting point for the bronze within the crucibles.

³² Or, better said, backwards. Because the aim of Archaeology is always understanding the past.



The pilot was carried out for one day and a half and all the 27 samples were tested. See below for the raw data collected during the experiment.

Inclusion types	Firing time (hours)	Sample number	Time (minutes)	NOTES
NA	4	1	3*	Not on stopwatch -failed
No inclusions		2	3*	Not on stopwatch-failed
		3	3*	Not on stopwatch-failed
	6	1	3:06	failed
		2	4:32	failed
		3	3:39	failed
	8	1	10:11	failed
		2	19:16	Moved due to charcoal-failed
		3	11:40	Hard bellowing -failed
	BA	4	1	4:45
Bone Ash	2		4:00	failed
	3		5:23	failed
	6	1	4:21	Hard bellowing-failed
		2	7:00	failed
		3	6:23	failed
	8	1	6:50	failed
		2	5:15	failed
		3	3:57	Sitting in fire before-failed
	Q	4	1	12:42
Quartz	2		17:00	Successful
	3		7:00	Technical error-successful
	6	1	15:33	Successful
		2	18:36	Successful
		3	22:18	Successful
	8	1	11:21	Successful
		2	8:30	Successful
		3	8:53	Successful

After the test, the students were asked to critically analyse the so created reference collection and to illustrate their observations regarding both quantitative and qualitative data. These observations and analysis were then elaborated into a final graph (see attachment: Shared drive folder: ARCH40850 – EXP_PICS).

The analysis of the data lead to interesting outcomes and considerations. I will only deal here with the project plan of the next generation experiments using some of the mixed methodology observations made during the module by the module coordinator, me and the students. I will analyse every variable in order, highlighting the problems and suggesting a solution for the next generation experiments.

TIME

The first analysis, based on quantitative observations, evidenced the heavy fluctuations of the time the crucible endured the heating process within the industrial hearth. This variable is by far the one that caused more trouble in the data analysis. There was no trend or pattern that could be observed in all the three groups of crucibles. This is probably due to the difficulties in getting a constant

bellowing, operated by hand³³. Also, the variable “time” had another problem: the timing was stopped either when the crucible failed or when the metal was melted. This “double standard” prevents to compare the two first groups to the last group. As a matter of fact, even if the crucibles belonging to the three variables clusters endured similar timings in the industrial hearth, only the quartz cluster reached the melting of bronze. This was a very important observation because it seems to indicate heat conduction as another, or probably the most relevant, variable to take in consideration in the second-generation experiments and could give insights in the interpretation of the archaeological record.

This passage can be compared to the “order effect” in quantum perspective: when all the timings were put in direct progression, the related tempered crucibles did show anomalies in the great endurance of non-tempered crucibles, even if the melting of the metal was not obtained. In other terms: “Order effects: where the order in which information is presented leads to inconsistent results³⁴”.

To ensure comparable data across the cluster, the experimental data indicate the need to include qualitative aspects in the equation.

TEMPERATURE

Temperature was recorded to assess the melting point of metal only, by placing the thermocouple probe in direct contact with the metal within the crucible.

Since the temperature measured with the thermocouple was not in direct contact with the crucible, we cannot be sure about the actual temperature the crucible endured. The shape of the crucible itself proved the measurement to be unreliable due to the small dimensions and the consequent difference in temperature when even small changes in the position of the probe were tested. It is possible that the temperature below the crucible was by far higher than the one measured in the crucible. In any case, the temperatures were only monitored during the experiment but not recorded. It is possible to assess an experiential indicator of the temperature phases? Indeed, this is possible. During the heating process the clay crucible glows at a certain temperature, namely between 700 to 800 °C. After the process the clay is permanently transformed. A reference collection from the school of Archaeology indicates the alteration of clay to different temperatures, and this can be read directly on the crucibles themselves up to 1350°C. So, there is an inner scale we can read in the clay element cycle that leads from observational, qualitative aspects to an interval of temperature, and therefore measurable, quantitative aspects (see also the pattern of vitrification and breakage analysed by the MSc students in all the clusters).

Regarding the metal cycle, we can rely again on a baseline of observational, qualitative aspects of the metal during the melting process which are verified through thermocouple temperature measurements. Thus, setting a very solid reference for the experiments. The first is the melting onset, when the bronze basically breaks down (950 to 1000°C). The second is at a specific temperature interval between 1050 and 1150°C, when the bronze is in the stage of full melt. The

³³ Further experiments could gain insights in the effectiveness of bellowing, if carefully planned.

³⁴ Wendt 2015, p. 157. This would imply a quantum decision theory could be useful to understand the choices of the past.

metal turns into a liquid droplet, very similar to mercury, and glowing strongly while showing a metallic, mirror-like surface (fig. 3).



It is important to state that the early medieval metalworkers were not relying their own bronze melting process on thermocouples or firing temperature of the crucible. The observational, qualitative data we can experience now, aided by the quantitative analysis of the process itself can return a glimpse of the actual indicators the early metalworkers used, thus leading us one small step closer to understand their abilities and skills. It is from this perspective that then we can move to consider any other interpretation about the metalworkers within the early medieval Irish society through the archaeological record. If Archaeology is to be considered as “History of material culture”, we can rely on all material record, and start from there, to tell the tales of **their** daily lives.

Second generation experiments:

Unknown variables:

- bellowing. Affects time and temperature. How to structure it? Try with rhythm. Or plan other experiments to measure performance?
- weather: did it affect? It seems it did not, but monitor the initial temperature of air, windspeed and humidity would be useful.
- Thermal shock: to assess the endurance of the crucible, it would be useful to use the air temperature to have a “zero point” on the Q axis of the equation.

Second generation experiment:

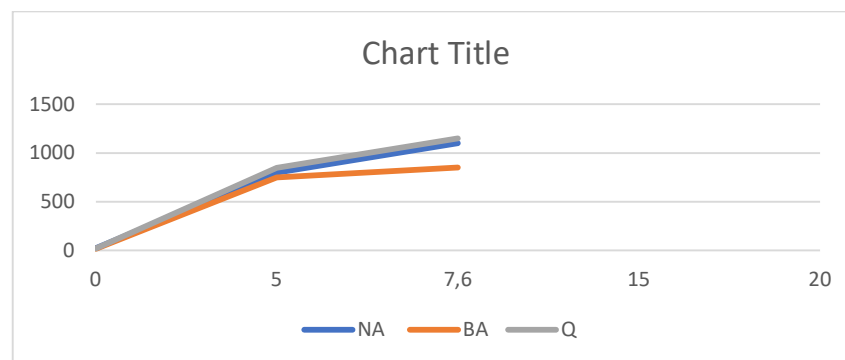
Repeat the test with:

- Set a scale on temperature based on experiential (qualitative, observational) information for both cycles (clay: glowing during process - patterns of vitrification and breakage after the process; metal: melting onset - full melt on the Q axis (temperature)).
- Set a limit for time measurements at the melting point of bronze.
- This will lead the results to be comparable on the same graph, using as Y axis the Q axis (temperature and heat observational qualities) and X as time axis.
- All measurements must be synchronized. The qualitative assessment must be recorded in time. A video could help in determining the actual transformative moment.

Outcomes: the ability to actually compare the three groups on a mixed methodology onset. The ability to compare heat conduction of quartz tempered crucibles compared to non-quartz tempered one. The recording of the “stages of transformation” against experiential information through video recording.

Final hypothesis testing: if the “technical performance” for crucibles was not that of endurance but of heat conduction, the aim of the process was not looking for long lasting objects, and therefore leaves scarce and indirect archaeological evidence. This might reflect the quantum decision theory of the early medieval Irish metalworkers and explain the difficulties in reading the archaeological record.

STRUCTURAL GRAPH OF SECOND GENERATION EXPERIMENT. (TO BE reviewed).



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Appendix 3 – Word Frequency Queries Protocols

Appendix 3

GENERAL PROTOCOL FOR WORD FREQUENCY QUERY ON SELECTED WEB PAGES

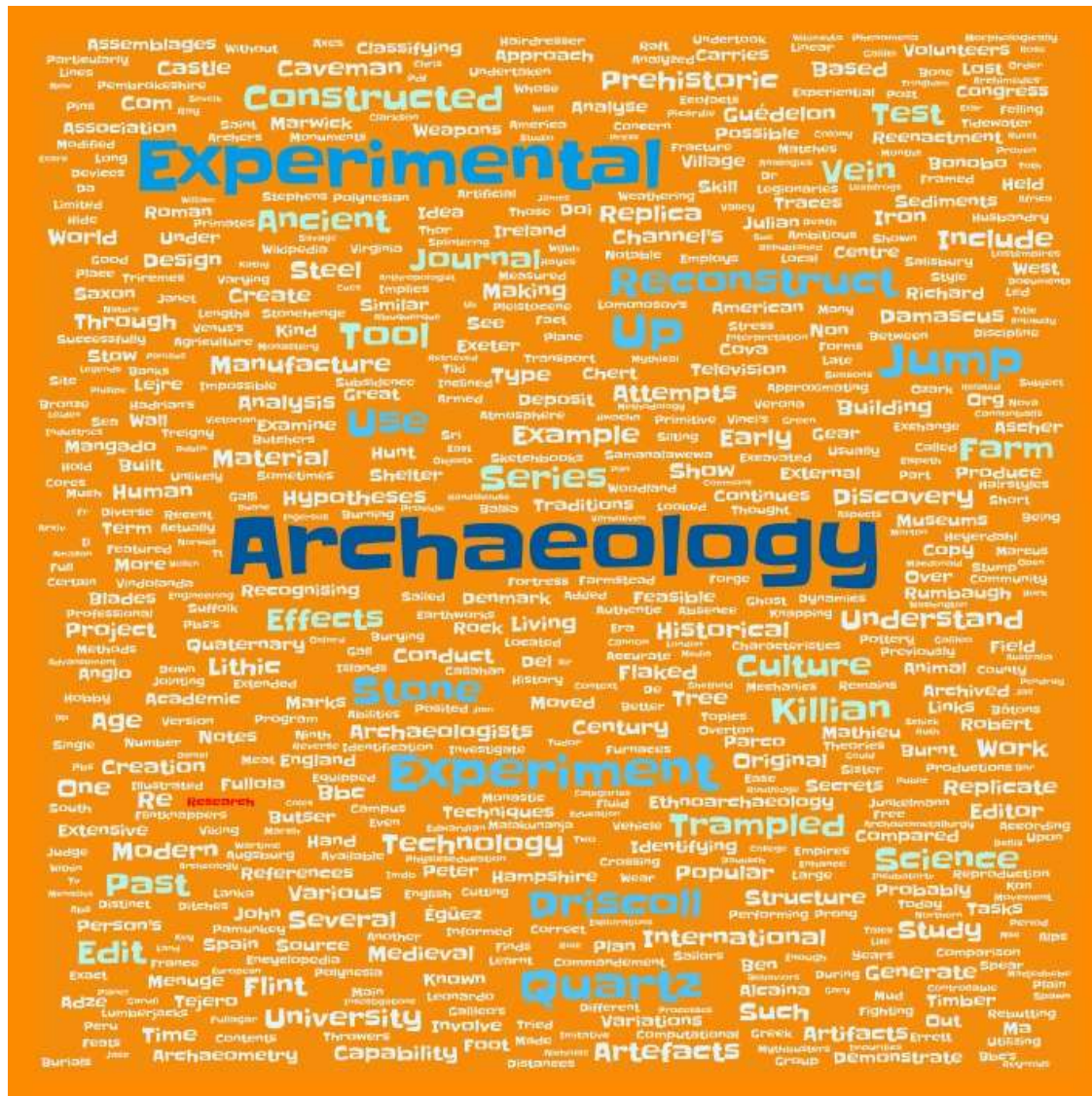
1. TEXT: copied the text, title, notes and references included.
2. Imported into Wordart. Import window: remove common words (edit, modifier, modifica, etc); remove numbers; stemming.
3. Settings: repeat NONE, size: use column size.
4. Deleted the words: pp; www; isbn.
5. Shape: geometric square.
6. Font: Slackey regular
7. Layout: select all the words.
8. Style: word colour: shape.

22/01/2018

English Page on Wikipedia for experimental archaeology:

https://en.wikipedia.org/wiki/Experimental_archaeology

The word “research” occurs only one time.



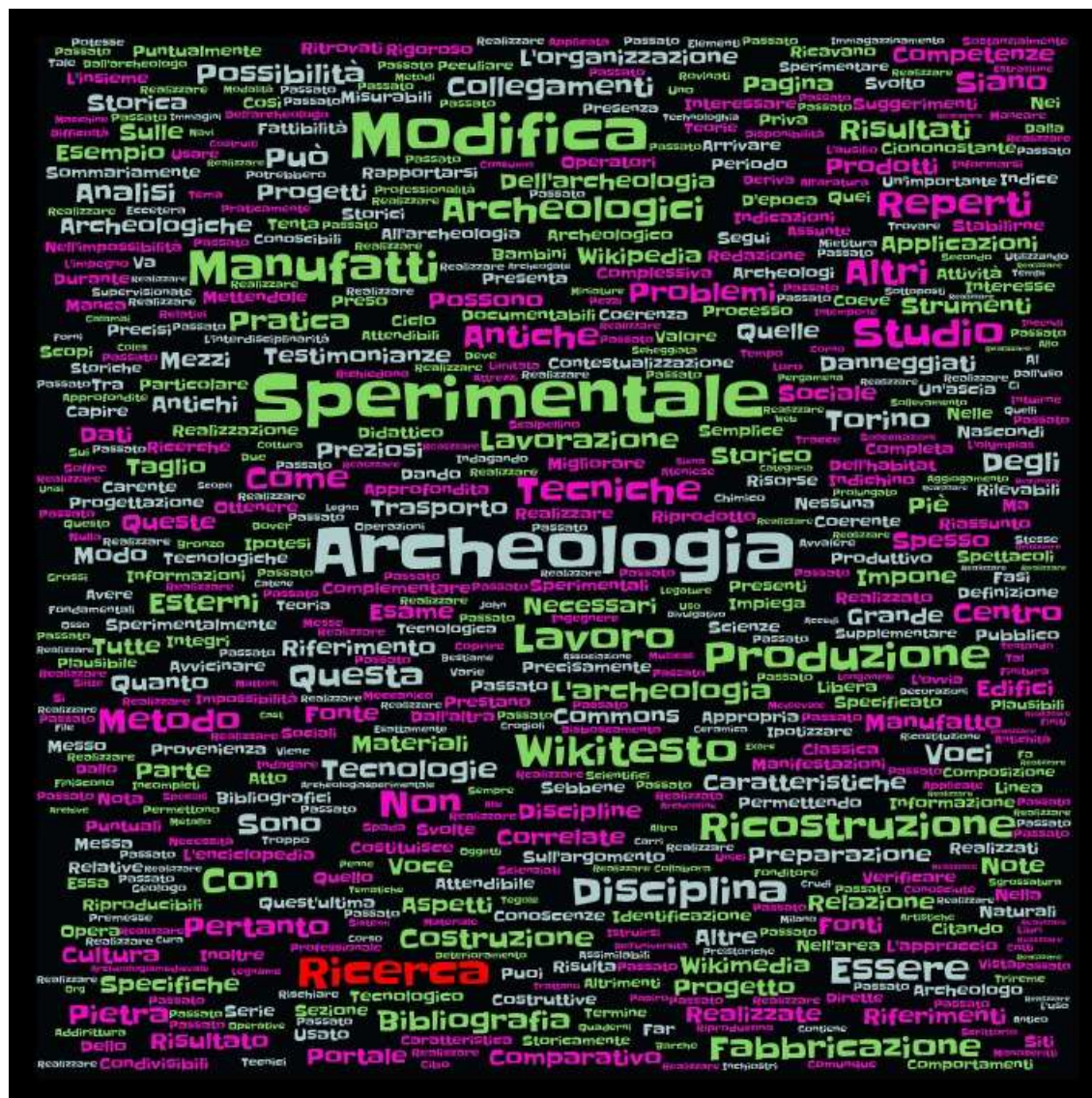
Italian page for experimental archaeology.

https://it.wikipedia.org/wiki/Archeologia_sperimentale

ADDED PROTOCOLS:

1. delete the words: di, per, una, che, dei, la, le, del delle della alla un si su da il dal se vi nel ecc sul piu' sulla gli.
2. To avoid repetition, manually deselected all the words (time consuming)
3. Did not put the frequency colors because it did not produce visible results.

The Italian word for research ("ricerca") occurs seven times.



French page for Experimental archaeology

https://fr.wikipedia.org/wiki/Arch%C3%A9ologie_exp%C3%A9rimentale

ADDED PROTOCOLS

1. Deleting articles and other “small” words, including “modifier” which was copied.

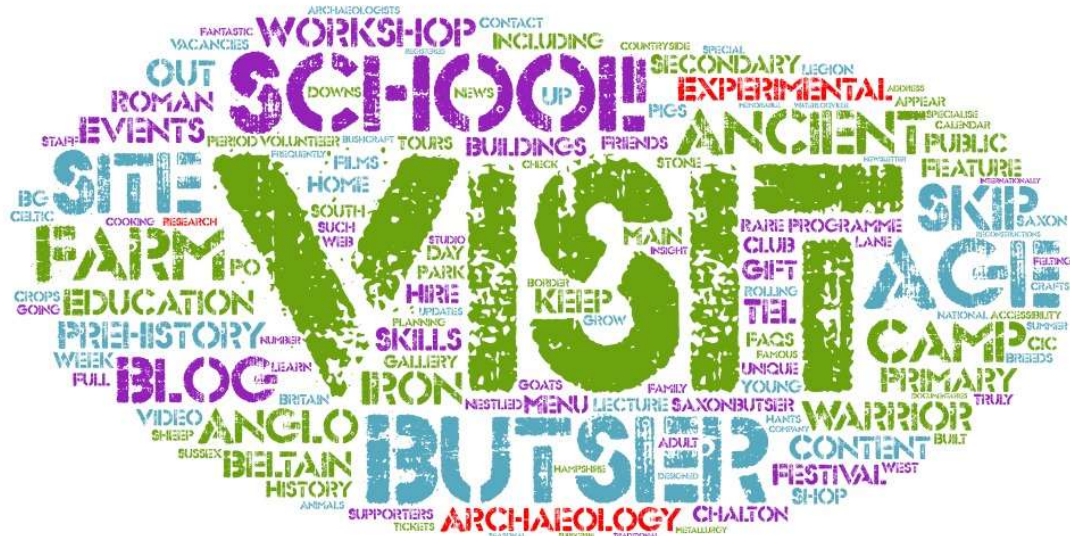
The French word for “research” (recherche) occurs 3 times.



12/2/2018

Word frequency query applied to a specific AOAM (Butser Ancient Farm).

Protocols as those above, highlighting with the red colour also the word “experimental archaeology” The shape of the wordcloud has been modified into “cloud”.



The home page:

<https://www.butserancientfarm.co.uk/>

Experimental archaeology is mentioned a few times and research one time.



The “about” page:

<https://www.butserancientfarm.co.uk/about-us>

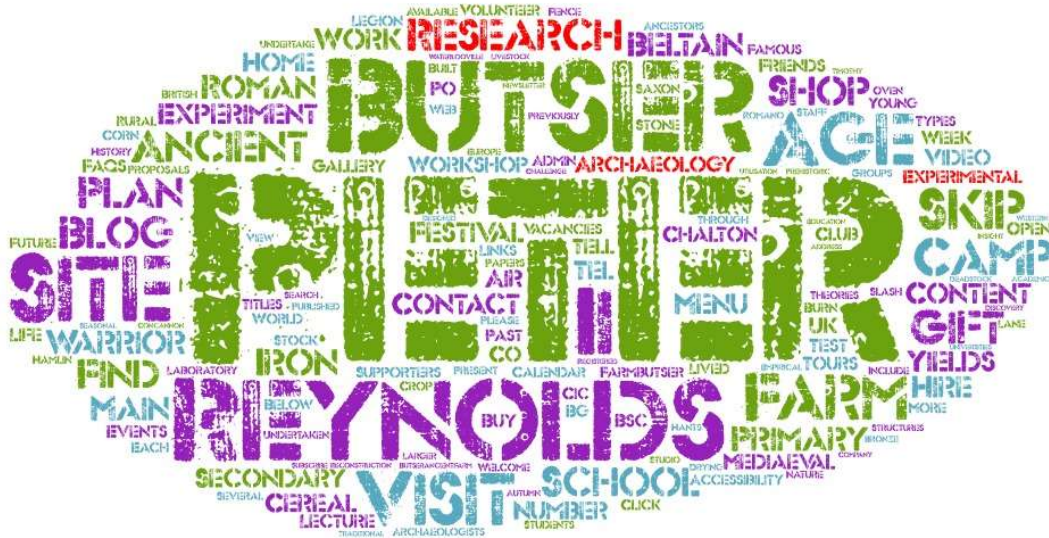
“experimental” is mentioned just once, and archaeology a little more. Research also a little bit more than once.



The blog page (news):

<https://www.butserancientfarm.co.uk/butser-blog>

Only one time for all the terms.



The “research” page, linked in the contact page:

<https://www.butserancientfarm.co.uk/research>

“Peter Reynolds” is the most recurrent. This is the only page in which research is mentioned more times than experimental archaeology.

(Queries performed 12/2/2018).

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Appendix 4 - Online Survey questionnaire

APPENDIX 4



Exploring the uses of Experimental Archaeology in European AOAMs

1. Introductory Statement

The aim of this questionnaire is to understand the range of relationships between experimental archaeology and AOAMs (Archaeological Open-Air Museums) by addressing questions to museum institutions, research institutions and independent activities (such as volunteers, professionals, re-enactment groups). The results of this survey are integral to the PhD thesis "Exploring the uses of Experimental Archaeology in European AOAMs", funded by the Irish Research Council at the School of Archaeology, University College Dublin, Ireland. The research is being conducted under the supervision of prof. Aidan O'Sullivan and Dr. Claire Cave in collaboration with EXARC (international network of experimental archaeology and AOAMs). Your responses will remain confidential and anonymous and no information will be communicated to third parties. Please answer the questions on the questionnaire as best you can. It should take approximately 10 minutes to complete. Participation is strictly voluntary, and you may refuse to participate at any time.

1. LOCATION OF ACTIVITY: COUNTRY (EU only). Please note: in compliance to GDPR (General Data Protection Regulation) this data will be pseudo-anonymised. *

2. Do you belong to: *

☐

Museum institution

☐

Academic/Research institution

☐ Independent activity

3. When was your institution founded?(YEAR)

4. Which body founded your institution?

☐ Governmental body

☐ Local association

☐ Academia

☐ Private company

☐ No-profit organization

☐ Other (please specify):

5. Do either reconstructions or replicas in your premises represent archaeological/historical examples from:

☐ The nearby area (50 km radius)

☐ The regional area (200/300 km)

☐ Other (please specify):

6. Do you agree or disagree with the following statement: "Your museum institution carries out experimental archaeology activities".

☐ Agree

☐ Neutral

☐ Disagree

Other (please specify):

7. If you agree, can you provide your latest example?

8. If you agree, are these activities carried out by: (multiple answers available)

- ☐ Museum operators
- ☐ Experimental archaeologists in the museum
- ☐ Service contractors
- ☐ Volunteers
- ☐ Other (please specify):

9. Do you agree or disagree with the following statement: "Your museum institution carries out research".

- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Other (please specify):

10. Do you agree or disagree with the following statement: "Research is included in your institution's statutory aims".

- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Other (please specify):

11. The reconstructions used in the museum were built using the following resources: (multiple answers available)

- ☐ Published research
- ☐ Excavation reports
- ☐ Generally accepted theories
- ☐ Other (please specify):

12. The replicas used in the museum were made using: (multiple answers available)

- ☐ Published research
- ☐ Excavation reports
- ☐ Generally accepted theories
- ☐ Other (please specify):

13. Who built the reconstructions/made replicas? (multiple answers available)

- ☐ External researchers
- ☐ Museum staff
- ☐ Museum volunteers
- ☐ External suppliers
- ☐ Other professionals (please specify):

14. Do you agree or disagree with the following statement: "Some of your institution's current activities could contribute to a wider research (archaeological, historical, social)".

☐ Agree

☐ Neutral

☐ Disagree

☐ Other (please specify):

15. If you agree, how?

16. Do you agree or disagree with the following statement: "Your institution is in contact with researchers or research institutions".

☐ Agree

☐ Neutral

☐ Disagree

☐ Other (please specify):

17. If you agree, how?

18. Do you agree or disagree with the following statement: "Your institution published its research activities".

- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Other (please specify):

19. Do you agree or disagree with the following statement: "Your institution presented its research activities in public or specific conferences".

- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Other (please specify):

20. Do you agree or disagree with the following statement: "The institution's research activities are part of the offer to the visitors". *

- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Other (please specify):

21. What is your position in the academic/research institution?

- ☐ Academic faculty
- ☐ Occasional teaching staff
- ☐ Postgraduate student
- ☐ Other (please specify):

22. Is there a module in experimental archaeology in your academic/research institution?
(multiple answers available)

- ☐ Yes, at undergraduate level
- ☐ Yes, at postgraduate level
- ☐ Yes, adult education activities
- ☐ No, it's only Staff research
- ☐ Not currently
- ☐ Other (please specify):

23. If so, when was experimental archaeology first introduced in the curriculum?

- ☐ Not sure
- ☐ Year:

24. Do you agree or disagree with the following statement: "Your academic/research institution carries out research through experimental archaeology".

- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Other (please specify):

25. If you agree, can you provide your latest example?

26. If you agree, when was experimental archaeology included in the research activity of your institution?

☐ Not sure

☐ Year:

27. If you agree, are these research activities carried out with the help of external professionals? (multiple answers available)

☐ Yes, with museum operators

☐ Yes, with experimental archaeologists

☐ Yes, with external contractors-

☐ Yes, with volunteers

☐ Yes, with other academic staff

☐ No.

☐ Other (please specify):

28. Do you agree or disagree with the following statement: "Some of your activities could contribute to AOAMs' activities".

☐ Agree

☐ Neutral

☐ Disagree

☐ Other (please specify):

29. Why would your academic/research institution be interested in contributing to AOAMS? (please attribute more value to the more important themes; feel free to add any comments in the box below)

- To promote archaeology ☐
- To perform public outreach activities ☐
- To educate the public ☐
- To promote research ☐

Comments:

30. Are you in contact with any AOAMs? *

- ☐ Yes, directly
- ☐ Yes, indirectly
- ☐ No
- ☐ Not currently
- ☐ Other (please specify):

31. When did your activity start?(YEAR)

32. How would you define your activity?

- ☐ Professional/freelance
- ☐ Employed by an institution
- ☐ Employed by a company
- ☐ Volunteer
- ☐ Occasional work
- ☐ No-profit association

☐ Other (please specify):

33. Do you agree or disagree with the following statement: "Some of your activities could be described as Experimental Archaeology".

☐ Agree

☐ Neutral

☐ Disagree

☐ Other (please specify):

34. If you agree, can you provide your latest example?

35. On what sources do you base your activities on?

☐ Published research

☐ Excavation reports

☐ Generally accepted theories

☐ Other (please specify):

36. Do you agree or disagree with the following statement: "Some of your activities could be described as ancient technology demonstrations".

☐ Agree

☐ Neutral

☐ Disagree

☐ Other (please specify):

37. If you agree, can you provide your latest example?

38. Where do you carry out your activities? (multiple answers available)

☐ AOAMs

☐ Traditional museums

☐ Archaeological sites

☐ Other (please specify):

39. Do you agree or disagree with the following statement: "Some of your activities could contribute to research (archaeological, historical, social)".

☐ Agree

☐ Neutral

☐ Disagree

☐ Other (please specify):

40. If you agree, how?

41. Do you agree or disagree with the following statement: "You are in contact with researchers or research institutions".

☐ Agree

☐ Neutral

☐ Disagree

☐ Other (please specify):

42. Do you agree or disagree with the following statement: "Your research activities were published".

☐ Agree

☐ Neutral

☐ Disagree

☐ Other (please specify):

43. Do you agree or disagree with the following statement: "Your research activities were presented in public or specific conferences".

☐ Agree

☐ Neutral

☐ Disagree

☐ Other (please specify):

44. Do you agree or disagree with the following statement: "Your activities contribute to the offer to the visitors in an AOAM". *

☐ Agree

☐ Neutral

☐ Disagree

☐ Other (please specify):

45. Would you like to get involved or contribute to this research on best practices of experimental archaeology in AOAMs a later stage? *

☐ Yes

☐ No, thanks

☐ Other (please specify):

46. If so, please provide a contact email in the following box. Please note: in compliance of GDPR (General Data Protection Regulation), by providing your personal contact, you agree to the processing of personal data (email contact) for the purposes of the research. The data controller and data processor is Lara Comis (lara.comis@ucdconnect.ie). You can contact the data controller anytime to access, edit or erase the data. Data will not be transmitted to third parties; they will be stored within the EU for the duration of the research (4 years) and will be then deleted.

47. Please feel free to write any additional comments and suggestions here.

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Appendix 5 - Anonymous Questionnaire

1. What factors made you choose to spend time with us today?

- ☐ Interested in the past ☐ enjoy hands on activities ☐ children friendly
☐ educational value ☐ interested in archaeological research
☐ other:

.....

2. How did you know about us?

- ☐ I/we have been at the School of Archaeology open day before
☐ Recommended by friends
☐ A brochure
☐ Website
☐ I was/ We were just passing by
☐ other:

.....

3. How easy it was to reach us?



4. How did you enjoy the following?

The offered activities



The staff



Overall experience



Quality of research



5. Did your experience today with us

- ☐ exceed your expectations ☐ meet your expectations ☐ fall below your expectations
☐ did not know what to expect

6. With whom were you visiting us?

- ☐ single ☐ with my partner ☐ family ☐

other.....

How long did you approximately stay with us?

.....

What did you like about us?

.....

What could we improve?

.....

Do you feel you learnt something with us? What?

.....

Where do you come from?

.....

Feel free to add any comments here:

.....

Thank
you !

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Appendix 6 - Interview Informed Consent

Exploring the Uses of Experimental Archaeology in European Open-Air Archaeological Museums – Lara Comis

Informed consent for interviews. (EU commission, Ethics for Social Science and Humanities research-GDPR – UCD ethics guidelines)

Introductory Statement

This study is investigating best practices in “Experimental Archaeology” activities performed in Open-Air Archaeological Museums across Europe. In other words, it is trying to understand and explore what makes them successful and how they can be linked with research in archaeology for the benefit of all people involved as well as the wider society. Lara Comis is the Principal Investigator, prof. Aidan O’Sullivan and Dr. Claire Cave the supervisors, School of Archaeology, John Henry Newman Building, University College Dublin, Stillorgan Rd, Belfield, Dublin 4.

A preliminary online survey has identified some categories of people who are more likely involved into Experimental archaeology activities in AOAMs. In your public role working with AOAMs we would like to invite you to participate in a short interview as a part of a pilot study to explore the relationship between AOAMs and experimental archaeology.

The aim of the short interviews is to deepen the understanding of the qualities associated with “experimental archaeology activities”. This should help us to test the effectiveness of this research strategy and to gather guidelines which will inform a wider and deeper systematic study of relevant AOAMs in Europe in the next stage of the investigation.

If you decide to take part in this part of the study, you will participate in **two short interviews** (max 30 mins each), one before the experimental archaeology activity and one after.

Data processing

The interviews will be recorded and transcribed. The resulting text will be qualitatively analysed to gain insights into key factors of success and general guidelines.

The data will be safely stored (paper documents will be stored in a locked physical drawer, digital or electronic data will be stored in an external hard drive and encrypted).

Data will be deleted after the end of the PhD project (4 years).

Data will not be shared or transferred to third parties under any circumstances.

As research participants, you have the right to withdraw from the study at any time, you are entitled to access, edit or delete data through contacting the data controller.

The data controller and data processor is Lara Comis (lara.comis@ucdconnect.ie, tel.

DPO contact details: Office of the DPO, Roebuck Castle, University College Dublin, Belfield, Dublin 4, Ireland, Email: gdpr@ucd.ie

Confidentiality Agreement

You have been contacted because of your public role in the research field though publicly available professional email address. Despite being interested in gaining general guidance and opinions on the topic of the study (experimental archaeology activities in AOAMs as related to research in archaeology), the interview process might stimulate the sharing of personal information or opinions, which might be irrelevant for the study, but will fall under a mutual confidentiality agreement³⁵ between the researcher and the research participant.

To ensure confidentiality and the right to restrict data processing, research participants can opt, if they wish, for one or both of the following:

1. Data anonymization. In this case, any identifier will be removed and only general information will be retained.
2. Transcription revision. In this case, the text file will be sent to the participant who will have the opportunity to revise the text within 7 days. If the participant fails the deadline, the transcription will not be used for the research.

DECLARATION

I have read this information sheet and have had time to consider whether to take part in this study. I understand that my participation is voluntary (it is my choice) and that I am free to withdraw from the research at any time without disadvantage.

Therefore, I agree to take part in this research (please tick the box) ☐

I hereby give permission for the use of the data collected from me using the following methods only: (please tick the relevant box or boxes you are agreeing to)

All data collected from me: ☐

De-identified data only: ☐

Taped Interview (audio): ☐

Photographs: ☐

Film/Video/DVD: ☐

I would like to receive the transcription of the interviews which I agree to revise and send back to the principal investigator within 7 days: ☐

Name of Participant (in block letters): _____

Signature: _____

Date: /

Name of PI LARA COMIS

Signature: _____

Date: /

³⁵ As a rule, criminal activity witnessed or uncovered in the course of research must be reported to the responsible and appropriate authorities, even if this means overriding commitments to participants to maintain confidentiality and anonymity.

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Appendix 7 - Code structure summary Pilot Study

Name	Memo Link	Files	References	Created On	Created By
Job position		9	9	30-Oct-19 12:48 PM	LC
Role		11	11	30-Oct-19 12:51 PM	LC
Exp arch added value		11	13	07-Nov-19 12:08 PM	LC
benefits museum staff		3	4	11-Feb-20 3:10 PM	LC
extra dimension of immersion		2	3	11-Feb-20 4:21 PM	LC
Full sensory experience		2	3	11-Feb-20 2:54 PM	LC
gives new ideas		3	3	11-Feb-20 3:42 PM	LC
hands on is important		1	1	03-Apr-20 5:00 PM	LC
live rather than explained		5	6	11-Feb-20 2:55 PM	LC
New business		2	2	11-Feb-20 3:08 PM	LC
Repeated visitors		1	1	02-Apr-20 11:22 AM	LC
Sustainability		1	1	02-Apr-20 11:18 AM	LC
tells a better story		2	3	11-Feb-20 2:59 PM	LC
Virtuous cycle arch-exparch		3	3	11-Feb-20 3:08 PM	LC
advantages and drawbacks		11	20	07-Nov-19 12:18 PM	LC
access to resources	Yes	6	8	10-Feb-20 4:01 PM	LC
Health and safety		3	3	10-Feb-20 4:00 PM	LC
Ideal Location		4	6	10-Feb-20 3:49 PM	LC
engaging for all		4	5	10-Feb-20 3:58 PM	LC
Knowledge Exchange	Yes	9	15	10-Feb-20 4:58 PM	LC
Genius Loci		2	2	10-Feb-20 3:59 PM	LC
Plus REAL arch. site.		1	3	10-Feb-20 4:04 PM	LC
the deeper need		1	1	10-Feb-20 4:52 PM	LC
Long-term		1	1	10-Feb-20 3:53 PM	LC
New attraction		1	1	11-Feb-20 3:05 PM	LC

students mediate with tourists		3	3	10-Feb-20 4:06 PM	LC
Internet connection		1	1	10-Feb-20 5:04 PM	LC
Logistics		5	5	10-Feb-20 4:08 PM	LC
poor management-unfulfilled potential		2	2	10-Feb-20 4:43 PM	LC
Logistics and TIME		2	2	10-Feb-20 4:54 PM	LC
managing HR and Participants		1	1	10-Feb-20 4:55 PM	LC
understaffed		1	1	10-Feb-20 4:41 PM	LC
Weather Element		3	5	10-Feb-20 3:51 PM	LC
Lessons to be learned		9	9	07-Nov-19 3:32 PM	LC
connection to the past by comparison	Yes	5	6	11-Feb-20 4:25 PM	LC
Scale		10	10	07-Nov-19 3:34 PM	LC
Success parameters		10	10	07-Nov-19 3:34 PM	LC
Research + public		11	11	07-Nov-19 3:35 PM	LC
challenges of public engagement in activities		3	3	03-Apr-20 4:50 PM	LC
Need of targeted outreach for funding		1	1	03-Apr-20 4:47 PM	LC
Potential through repeated activities		1	1	03-Apr-20 4:40 PM	LC
Recording potential (outreach first)		1	1	03-Apr-20 4:42 PM	LC
transformative role of participation		1	1	03-Apr-20 5:04 PM	LC
EA=teaching ancient techno		2	3	10-Feb-20 4:36 PM	LC
Research - DOUBTS		2	2	02-Apr-20 1:25 PM	LC
our ancestors narrative	Yes	5	9	08-Sep-21 4:20 PM	LC
empowering people	Yes	3	4	09-Sep-21 3:31 PM	LC

VISUAL MEANS	Yes	8	13	09-Sep-21 5:38 PM	LC
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Appendix 8 - Community experimental archaeology project CONCEPT

Community experimental archaeology project.

Previously communicated: 10/08/18 G. Warren, C. McDermott; PhD supervision meeting 15/09/2018; PhD day ppt 06/12/18.

PROJECT COORDINATOR: Lara Comis

CONCEPT

Within the framework of my PhD research, one of the aims is to detect, develop and possibly test best practices in experimental archaeology. Experimental archaeology practice has two main directions. The first leads to an advancement of knowledge through the scientific community. The second moves to involve the public in an active and full sensory experience and has proven to have a deep social impact. Among the issues to address:

- 1. Research:** how to avoid loss of relevant data during the experimental archaeology activity
- 2. Social impact:** how to correctly communicate the research process which sound experimental archaeology projects use to investigate the past.

As already pointed out, the lack of awareness in the public of the research process “behind the scenes” is just one aspect of a troublesome presentation of the past which follows ideological biases. On the other hand, experimental archaeology is a very fragmented practice in research.

While the analysis of the qualitative results of the European survey on best practices is being carried out, and a new theoretical and methodological framework is being developed for experimental archaeology, a possible way to investigate an active response to the above-mentioned issues would be to

- Create a protocol for Community Experimental Archaeology, which could set the model to test in Europe in Archaeological Open-Air Museums.

REQUIREMENTS

- A research institution with sound methodology to investigate the past through experimental archaeology protocols. The research institution must excel in teamwork, collegiality and research ethics.
- A community which can voluntarily be involved in the project. The participatory aspect could be designed to support small groups of people who might need social support.

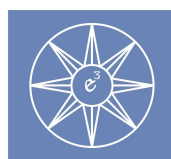
OUTCOMES


An experimental archaeology practice which fulfils both research ethics and social responsibility and can be adapted to museums, research institutions and communities which could profit from it.





17


Appendix 9 - _ ABADIR _

Soundscape example




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Roman Age Bilge Pump - Soundscape

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Report


Experimental reconstruction of a Roman Age (II cent BC - VI cent AD) Bilge Pump in action.
Recorded by Lara Comis, 2014, at the "Museo del Mare e della Navigazione Antica" in Santa Severa (Rome, IT).

Reference:

Enei, F. 2005 Ricostruzione sperimentale di una pompa di sentina del tipo a bindolo presso il Museo del Mare e della Navigazione Antica (Santa Severa, Roma), in: Archaeologia maritima mediterranea : International Journal on Underwater Archaeology : 2, 2005.

See also: www.aracneeditrice.it/pdf/9788895769370.pdf

experimentalarc... # Soundscape

"Roman Age Bilge Pump - Soundscape" By ~ ABADIR ~ is licensed under a  Creative Commons License.

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