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## Bioarchaeological Knowledge Mobilization and the Museum as Knowledge Broker

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A thesis submitted in partial fulfillment of the requirements for the Master of Arts degree in Anthropology

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## Abstract

Knowledge mobilization – the process of creating, disseminating, and using knowledge to generate real-world value and impact – is essential in research. The highly contextual nature of human remains poses unique challenges for successful bioarchaeological knowledge mobilization, requiring these projects to address historico-cultural, sociopolitical, and ethical contexts in order to mobilize knowledge in a way that is both accurate and appropriate for diverse communities. This thesis considers the way that museums, as places of community heritage and engagement, may serve as knowledge brokers, facilitating meaningful interactions between researchers and the wider public. Exploring museum professional perspectives in conjunction with an analysis of bioarchaeological exhibit websites and a case study of Guanajuato, Mexico, this study establishes key factors of successful bioarchaeological knowledge mobilization in museums, identifies potential barriers to these processes, and generates a list of informed questions to guide the development of future bioarchaeological knowledge mobilization projects.

## Keywords

knowledge mobilization, knowledge translation, bioarchaeology, museum, knowledge broker, human remains

## El resumen

La movilización del conocimiento – el proceso de creación, difusión y uso del conocimiento para generar valor e impacto en el mundo real – es esencial en la investigación. La naturaleza sumamente contextual de los restos humanos plantea retos únicos para el éxito de la movilización del conocimiento bioarqueológico cual exige que estos proyectos aborden contextos histórico-culturales, sociopolíticos y éticos para movilizar eficazmente el conocimiento de un modo tanto preciso como apropiado para diversas comunidades. Esta tesis examina la forma en que los museos, como lugares de patrimonio e integración a la comunidad, pueden servir como intermediarios del conocimiento, facilitando interacciones significativas entre los investigadores y el público en general. Estudiando las perspectivas de los profesionales de los museos, en conjunto con un análisis de los sitios web de exposiciones bioarqueológicas y un caso de estudio basado en Guanajuato, México, esta investigación determina los factores clave para una exitosa movilización del conocimiento bioarqueológico en museos, identifica posibles obstáculos en estos procesos y genera una lista de preguntas informadas para orientar el desarrollo de futuros proyectos de movilización del conocimiento bioarqueológico.

## Las palabras clave

movilización del conocimiento, traducción del conocimiento, bioarqueología, museo, intermediarios del conocimiento, restos humanos

## Summary for Lay Audience

Human remains and their treatment after death can provide unique insight into an individual's life and their culture. Within North America, bioarchaeology largely refers to the study of human remains from archaeological sites in order to learn about life (and death) in past societies and cultures. The findings of bioarchaeological research can influence how we view the histories and identities of different groups of people across time and, as a result, have social, political, and cultural significance for our understandings of people in both the past and the present. This widespread applicability of bioarchaeological research means that its meaning and relevance will vary across communities. This diversity in perspective relates to the spectrum of opinions that can exist about death, the proper treatment of the dead, and the place of those who have passed among the living. Additionally, the history and legacy of bioarchaeology as a contributor to colonization efforts and the marginalization of certain communities often impacts how people interact with this research. For these reasons, it is important to understand how bioarchaeological research projects may create and share knowledge in ways that are meaningful and beneficial for diverse communities. This process of creation and sharing may be referred to as bioarchaeological knowledge mobilization. When bringing together groups of people who may have diverse backgrounds and perspectives, it can be useful to look at partners in these projects who might act as mediators, bridging these communities so as to allow for better communication. These partners are referred to as knowledge brokers, and museums, as places for public heritage experiences, may play this role in bioarchaeological knowledge mobilization projects. With this in mind, this thesis presents discussions with museum professionals, analyses of museum exhibit websites, and the author's personal experiences in Guanajuato, Mexico to explore the

foundational elements of effective bioarchaeological knowledge mobilization in museums, the types of value and impact these projects create with their communities, and suggest a list of questions to help guide the creation of future bioarchaeological knowledge mobilization projects.

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## A Note on Positionality

I believe that statements that make the positionality of the author/researcher visible within their work can be valuable to an audience's processing and evaluation of the information being presented. As someone with an educational background in bioarchaeology, I often consider myself a "bioarchaeologist." This background and/or label was something that I had in common with a number of the museum professionals who participated in this research, and many of our conversations highlighted how these participants felt this project would contribute to the work museums are doing to share bioarchaeological research with wider audiences. Over the course of this project, I have also come to see myself as someone who does bioarchaeological knowledge mobilization work. As a result, there are times that I make more generalized statements about bioarchaeological knowledge mobilization practice that use "we" or "our." These statements are meant to include anyone who is reading this thesis and seeking guidance in conducting effective projects. However, I must also acknowledge that I experience privilege within these spaces as a white researcher and, as such, my relationship with, and perception of, bioarchaeological knowledge mobilization is likely to be different than those who have been harmed by the actions of museums and bioarchaeology. While I have tried to highlight the various perspectives that exist around the different subjects discussed in this thesis, it is likely that there are voices in these conversations that I have missed. For this reason, I aim to provide readers with information about the bioarchaeological knowledge mobilization process and elements that can be foundational to its success, while also encouraging them to recognize that there are many communities who are interested in and/or affected by this research with whom they should also consult.

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## Chapter 1

### 1 Introduction

Bioarchaeology, within North America and in the context of this thesis, refers to the study of human remains from archaeological sites, with the aim of learning more about these individuals and the societies and cultures to which they belonged (cf. Buikstra, 1977). The object of this thesis is to examine knowledge mobilization of bioarchaeological research. Knowledge mobilization – broadly defined as the creation, dissemination, and use of knowledge for the purpose of communicating research findings in way that creates value and impact (cf. Bennet & Bennet, 2007) – is a steadily growing concern in the academic world. Institutions and funding agencies actively look for effective knowledge mobilization plans as integral parts of any proposed research project (cf. Social Science and Humanities Research Council, 2012; Canadian Institutes of Health Research, n.d.). Despite the growing significance of this step in the research process, and the ever-growing body of literature regarding museum ethics and community engagement in relation to human remains, there is still a paucity of work dedicated to understanding these factors as part of the larger process of bioarchaeological knowledge mobilization. Knowledge mobilization projects are complex due to the number of factors that contribute to a project's outcomes, and the unique history and context of human remains in bioarchaeology compounds this complexity further. With knowledge mobilization discourse being largely focused on other fields, such as public health or policy creation, there is a scarcity of consideration as to how human remains may be most effectively presented to wider audiences as unique combinations of biological and funerary context from which lived experience may be interpreted.

Museums, as the primary setting in which wider audiences have access to and engage with the knowledge gained from bioarchaeological research, play an essential role in the bioarchaeological knowledge mobilization process. As a result, they may serve as an indispensable site of study when bridging this gap in the literature. For this reason, this thesis examines bioarchaeological knowledge mobilization in the museum space through museum professional perspectives, exhibit websites, and a case study, in order to better define the role that museums might play in these projects.

## 1.1 Understanding Knowledge Mobilization

Knowledge may be conceptualized as the “understanding of or information about a subject that you get by experience or study” (Cambridge Dictionary, n.d.). Knowledge mobilization has many different definitions, forms, and practices that coincide with the varied contexts, interested/affected groups<sup>1</sup>, resources, questions, and outcomes of each project (Fazey et al., 2013). This means that what knowledge mobilization means (and even what this process might be called) is likely to be different for each project, and even each person involved. While this can make it difficult to encapsulate the range of meanings that this one term might hold, investigating how the concept of knowledge mobilization is identified, defined and discussed within different contexts allows us to better define its core tenets.

From a research perspective, knowledge mobilization, briefly, refers to “all the activities and products created that help [one’s] research be useful and used” (Research Impact

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<sup>1</sup> Recognizing that the term “stakeholder” has colonial associations and may be considered offensive or alienating to some communities, I have elected to follow Reed & Rudman (2022) in using “interested/affected groups” instead.

Canada, 2020). This definition identifies what I have come to understand as the fundamental intention of the knowledge mobilization process: to place knowledge gained during a research project into practice, generating real-world impact and value. In this context, the term ‘impact’ refers to the creation of change within the recipient communities as a result of the outputs of a knowledge mobilization project, while ‘value’ refers to the significance of the knowledge and the mobilization project to these communities. Ultimately, this means that value is essential for creating interest in, and utilization of, whatever outputs a knowledge mobilization project creates, and by extension determines impact (Phipps, n.d.). It is useful to have a deeper appreciation of the various principles that may be considered necessary to the knowledge mobilization process in order to better understand this interplay between value and impact. I will explore these below through an examination of theoretical approaches to “knowledge translation” (one of the most prevalent terms when discussing the movement of knowledge into action) and “knowledge mobilization” (a popular term for this process in the Social Sciences) in the following paragraphs.

Knowledge translation is a term common in the domain of health care, which is where much of the discourse around knowledge translation theory is centered. The term knowledge translation is meant to act as a metaphor, conveying the idea that the knowledge gained from research is objective and independent of context, and must be translated for users within the contexts of evidence-based practice (Greenhalgh & Wieringa, 2011). In other words, the value of the knowledge comes from its relation to the real-world contexts in which it can have an impact. While the knowledge translation metaphor highlights how contextualizing knowledge for the intended audience is

important for its significance and use, traditional knowledge translation practices have been critiqued (Greenhalgh & Wieringa, 2011; Salter & Kothari, 2016) for their underlying preconceptions.

As a result of how knowledge is thought to be actualized within knowledge translation theory, the flow of knowledge tends to be seen as a unilinear process, passing from researchers to practitioners (Salter & Kothari, 2016). This can be seen as limiting in contrast to perspectives where knowledge flow is seen as multidirectional, and knowledge is continually being re-evaluated through the interactions of producers and users. Additionally, the knowledge translation metaphor has been criticized for the assumptions that lie in the conception of research knowledge as detached and objective, as if it was created in a bubble, separated from the world and the experiences of the researchers involved (Greenhalgh & Wieringa, 2011). By separating knowledge from researcher, this perspective also serves to privilege explicit quantitative knowledge over qualitative knowledge, particularly in relation to implicit tacit knowledge, or knowledge that is gained from experience (Greenhalgh & Wieringa, 2011; Salter & Kothari 2016). In the field of bioarchaeology, where there is internal and external pressure for increased community engagement and recognition of alternative ways of knowing, the implications of these traditional knowledge translation practices pose a problem. While there is literature, such as that cited above, that explores different approaches to knowledge creation and dissemination in relation to “knowledge translation,” I turn now to discussions happening in regard to “knowledge mobilization,” which is more commonly used within the Social Sciences and has more use in community-centered contexts (Worton et al., 2017).

While there are some definitions of knowledge mobilization which focus on unilinear knowledge flow, more recent conceptions of the term promote a multidirectional approach that allows for the acknowledgement of multiple forms of knowledge and advocate for the exchange of information and ideas between the different interested/affected groups in the knowledge mobilization process (e.g. Bennet & Bennet, 2007; Bradford & Bharadwaj, 2015; Edelstein, 2016; Fazey et al., 2013; Langley et al., 2018). In these processes, the value of knowledge is constantly renegotiated between the interested/affected groups and reconstituted in relation to its significance and utility for the people and contexts with which it is associated. This is why Bennet & Bennet (2007) highlight that effectiveness and sustainability are also essential components of knowledge mobilization. According to them, a project is most likely to be effective when it incorporates all interested/affected groups in every step of the process, and when it accounts for the wishes and expectations of the knowledge users. They argue that knowledge mobilization projects should embrace collaborative entanglement, or in other words, “purposely and consistently develop and support approaches and processes that combine the sources of knowledge and the beneficiaries of that knowledge to move toward a common direction such as meeting an identified community need” (Bennet & Bennet, 2007, p. 48). The importance of this collaboration is also emphasized by Edelstein (2016), who establishes that the continued communication between the various interested/affected groups in a knowledge mobilization project allows for not only the formal transmission of knowledge, but also informal transmissions, which are essential for building relationships between research and non-research partners. In sum, by following a multidirectional approach, the knowledge mobilization project becomes a

shared endeavor, fostering critical dialogue that enables research and practice to reciprocally inform each other in a self-sustaining process. It is with this understanding of knowledge mobilization in mind that I approach my examination of the perspectives and practice of museum professionals in order to build a framework for understanding bioarchaeological knowledge mobilization<sup>2</sup>.

## 1.2 Exploring the Place of Bioarchaeological Knowledge Mobilization in the Museum

### 1.2.1 Museums as a Space for Community

As of August 2022, the International Council of Museums (ICOM) has approved the proposal for a new definition of ‘museum,’ defining it as an “institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. They operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for education, enjoyment, reflection and knowledge sharing” (International Council of Museums, 2022). This new definition highlights these institutions as spaces for community-driven heritage experiences. The shift to a focus on community follows changes within the museum field over the past decades towards a prioritization of public education and engagement. It also coincides with recent socio-political events – such as the Black Lives Matter protests and

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<sup>2</sup> I would be remiss not to note that there is one other term that is commonly used in relation to the creation, dissemination, and use of knowledge. Knowledge exchange is a term that is largely used in Environmental Sciences and Policy Management and has generally implied a bi- or multi-directional flow of knowledge (Fazey et al., 2013). While the term knowledge mobilization may have had less of a historical association with multi-directionality than that of knowledge exchange, the definitions of these terms have become more conflated in recent years (Worton et al., 2017). As a result, I have elected to use the term knowledge mobilization to represent this multi-directional process due to its familiarity in the Social Sciences.

the identification of and further search for unidentified graves at residential schools in Canada and the United States – that demand society at large acknowledge the widespread marginalization of and violence against equity-deserving communities, as well as address the past and present harms done to them through systemic processes, such as colonialism. Museums, in particular, have been called to reckon with their role in these processes, as institutions that were traditionally founded as products and reinforcements of colonial efforts and ideals. Reflecting on this legacy has resulted in changes to the perceived role of museums in society and, as a result, has led to the need for this new definition. As ICOM explained in a statement about these changes, “This new definition is aligned with some of the major changes in the role of museums, recognising the importance of inclusivity, community participation and sustainability” (International Council of Museums, 2022).

The focus on museums as community-driven spaces for education supports the idea that they should be central places for knowledge mobilization to occur. As established earlier in the chapter, the intended result of the knowledge mobilization process is the creation of value and impact *for communities*. But what do we mean by “communities”?

In the most general terms, a community is a group of individuals who are brought together by some aspect of shared identity, which results in a level of “[shared] lived experience and common interests” (Atalay et al., 2014, p. 16). In regard to knowledge mobilization in museum spaces, these communities could widely be considered the museum’s “audiences.” However, it is important to remember that the concept of community is complex, and communities cannot be considered as homogenous entities.

They exist as groups of individuals who have their own thoughts, values, and opinions.

Exploring the complexities of “communities,” Atalay et al. (2014) explain:

Individuals are normally members of multiple communities and they form, manipulate, and perform identities within and between them. These processes invariably transform communities, making boundaries and membership dynamic and fluid over various temporal, social, and geographical scales... Each community exists in relationship to other communities with their own interests and different abilities to realize those interests (p. 16).

This is why it is essential for knowledge mobilization projects to consider how best to contextualize their outputs for greatest value and impact, and why collaboration between multiple interested/affected groups facilitates successful projects. Consequently, in order to understand bioarchaeological knowledge mobilization within the museum space, we must understand how its audiences connect with exhibit knowledge.

### 1.2.2 The Relationship between Communities, the Museum, and Human Remains

Falk & Dierking (2013) put forth the Contextual Model of Learning, which explores the various factors that influence how audiences engage with museum spaces. According to their research, there are three different contexts – personal, sociocultural, and physical – which together serve as motivators and shapers of museum visitor learning. In this model, the personal context consists of individual factors, such as a person’s level of knowledge and experience with a subject, as well as their learning style; the sociocultural context refers the various sociocultural milieu in which an individual has existed throughout their life, which impacts their values and beliefs; the physical context relates to how the knowledge and materials are presented, including the atmosphere of the space itself (Falk & Dierking, 2013). These three dimensions of engagement must all be considered together when understanding bioarchaeological knowledge mobilization, as they are all

inseparably entangled and forever influencing each other. Therefore, in order to theorize about the bioarchaeological knowledge mobilization process in museums, it is necessary to first establish the positionality of human remains within the museum space and how they relate to the backgrounds and identities of museum audiences, as well as audiences' relationships to human remains. For this, I turn to the literature.

While the term “bioarchaeology” may refer to the study of any biological materials from an archeological site (Clark, 1972), this thesis specifically looks at the way that human remains (cf. Buikstra, 1977) – and what they may tell us about the past – are seen within the museum context. Human remains, in particular, have a very tumultuous – and, in many cases, violent – history with museums, which can complicate the way that a community perceives and interacts with museums and their work to mobilize bioarchaeological knowledge. The majority of collections<sup>3</sup> in Canada, the United States, and many parts of Europe are derived from colonization efforts and have been taken without permission from their descendant communities. Therefore, it is unsurprising that many people view museum collections, and the buildings that house them, as symbols of colonialism and, as a result, lack trust in these institutions. Furthermore, confronting the

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<sup>3</sup> Due to the history of human remains and their objectification in museums, it is very important to consider the language that we use when having discussions about bioarchaeological knowledge, a point which we will return to throughout this thesis. The term “collections” is one of many which should be discussed and challenged due to its long history of being used to objectify human remains and distance them from their humanity and their history by categorizing them as property of museums for study and display. While this point was discussed with some participants in the study, collection persists as dominant terminology within the field, and so the term has been used for clarity in communication throughout this thesis. However, other work has highlighted some other terminology that may be used in place of collection. ten Bruggencate et al. (2023) promote the use of the term Ancestors when discussing respectful care practices in their work with Indigenous communities. Ward (2024) has used the term community. In this thesis, wherever possible, I have used phrases such as “housed in museum collections” rather than “belonging to museum collections” as a way to try and recognize and reinforce the humanity of these individuals. Additionally, I encourage readers to be cognizant of and reflect upon the historical use of “collections” to reinforce colonial ideologies of superiority every time that they encounter the term.

history of objectification of human remains through sensationalized display can make people uncomfortable with their association with museum exhibits. Consequently, there has been much discussion in the literature about museum treatment of human remains and whether or not it is ever appropriate to display them, or even study them, in the first place.

When discussing what is “appropriate” – or “respectful” – we must recognize that what these terms mean can be more difficult to define in regard to human remains. This is because there are innumerable attitudes and opinions about death and the appropriate or respectful treatment of the dead that exist in the world (see Swain, 2007 for an example of the polarized spectrum of opinion that exists around human remains and appropriate treatment, particularly within the museum space). Death is a subject that is deeply personal, as everyone is subject to mortality and will face death at some point. As a result, each person has a unique positionality on the subject – shaped by the societies, circumstances, and cultures they grow up in, as well as their own personal life experiences – which will continuously change and evolve over time (c.f. Doughty, 2018; Metcalf & Huntington, 1991). Due to the deep and personal connections that people have with it, death and the way that the dead are treated are not only personal issues, but also social and political issues. The way that the dead are treated has power, and this treatment conveys messages that can be beneficial or harmful to a community and their identity (Crandall & Martin, 2014; Doughty, 2018; Rubin, 2015; Tung, 2014; Williams, 2004 provide just a few of many examples of how the dead may have agency to effect social and political influence in the lives of the living).

Despite the issues posed by the complex history of human remains in museums, the literature provides examples where positive engagement with bioarchaeological knowledge has occurred. These examples illustrate that there are circumstances where bioarchaeological research and resulting knowledge mobilization projects have potential within the museum space. The work of Anderson (2018) in exploring the ethical issues that museums face when exhibiting human remains highlights that context plays a significant role in whether certain treatment of and interactions with human remains are considered respectful. As she elucidates, the variety of responses elicited by the existence and display of human remains reveals that the ethical concerns that people have around human remains are tied to the positionality of these remains in relation to the cultural beliefs of the deceased, the cultural beliefs of the living who interact with them, and their history and treatment within the museum space. Therefore, decisions around what is respectful or appropriate treatment of human remains must be determined within the historical, cultural, and socio-political context of each project, requiring museums to take into account the various temporal, environmental, and museological factors (see Exell, 2015; Ikram, 2018; Overholtzer & Argueta, 2018 for deeper examinations of these factors and how they may apply within specific contexts). This idea of a project's appropriateness being contextually grounded applies to both research and knowledge mobilization projects. However, this thesis focuses on how we may effectively mobilize bioarchaeological knowledge after research has been conducted.

In trying to counteract the previous objectification of human remains in museum spaces, many professionals have considered educational and informational content as an antidote to sensationalism, focusing on this approach as the quintessential tool for creating

respectful bioarchaeological knowledge mobilization projects. However, a review of the literature shows the issue to be more complex than this simplified dichotomy. While educational efforts can contribute to respectful interactions with human remains, it is important to recognize that educational efforts can also lead to a sterilized objectification of these remains.

In her assessment of the British Museum's recent mummy exhibition, *Ancient Lives, New Discoveries*, Wagner (2017) examines the concept of the "medical gaze" and how it can cause education to turn into objectification. As she describes, the medical gaze refers to a perspective from which the body of an individual is considered separate from their identity (a common practice in medical research and studies due to privacy regulations, hence the term), causing a reduction of the individual to their physical remains as a knowledge resource. Human remains in museum spaces are also vulnerable to this perceptual framework, particularly when we consider the incorporation of medical technologies, such as X-ray and CT technologies, within the study and exhibition of human remains (Wagner, 2017). As a result, Wagner emphasizes that museums must be cognizant of the implications of their content on untrained audiences. In particular, she emphasizes how the incorporation of technologies that allow visitors to dissect and examine human remains (such as the manipulation of CT scans), with the ability to undo any and all elements of their dissection, may potentially suggest a lack of stakes or risk in working with human remains. This, Wagner explains, could prevent visitors from fully grasping that there is a unique and limited opportunity to learn peoples' stories when working with human remains. It may also prevent them from looking past the scans rendered by these technologies in order to acknowledge and appreciate the individual's

identity and humanity (Wagner, 2017). However, just because there is a risk here, does not mean that education should be neglected entirely. As Wagner highlights, these factors may be negated through exhibit designs that work to closely link what is known about the individual's identity, such as name, occupation, and life history factors, to the images of these individuals. This, she asserts, can allow for the construction of an embodied point of view and help visitors see human remains as once-living persons (Wagner, 2017).

Curtis (2003)'s work exploring the complex ways in which the living are involved in decisions regarding the treatment of the dead provides another criticism of education only perspectives, rejecting the idea that human remains are only respectfully engaged with in educational or scientific contexts. He states that in focusing on the educational aspects of human remains, we overlook the complexity of interactions that the living may have with the dead and the different emotional or spiritual ties that people may have with human remains, regarding them, for example, as ancestors or sacred or even just as another person worthy of dignity and respect. Curtis asserts that these ties deserve to be acknowledged as equally important to their educational value, as it is this emotional connection that allows people to form meaningful relationships with these remains, connecting present populations with the past.

The varied relationships that people can have with human remains are acknowledged in Hubschmann (2018)'s analysis of the purpose of museums, which recognizes their dual role as places of education and experience. She suggests that appropriate museum exhibits should incorporate the public's interest in human remains with accurate portrayals of past populations. By beginning from the interests of its communities, Hubschmann argues that museums are able to make knowledge more accessible,

fostering a space of critical dialogue that allows for an acknowledgement of the complex reality of the lived experience (Hubschmann, 2018). Hubschmann's perspective highlights that museums can, and should, be places that facilitate multidimensional knowledge mobilization projects that center on communication and collaboration.

### 1.3 Examining the Museum as Knowledge Broker

When looking at establishing communication and collaboration between bioarchaeologists, descendant communities, and the general public, the museum may be seen as a form of knowledge broker – “people or organizations that move knowledge around and create connections between researchers and their various audiences” (Meyer, 2010, p. 118) – removing barriers of communication between other interested/affected groups in the knowledge mobilization process. Meyer (2010) depicts knowledge brokers as a sort of bridge, bringing together different communities in a space where the barriers to knowledge mobilization have been removed. These barriers could be “a physical gap such as geographic location, cognitive or cultural gap such as differing disciplines or professions or alternatively... [it] may be that members of one party have no basis on which to trust the other” (Long et al., 2013, p. 1). In establishing a relationship with the various interested/affected groups in the knowledge mobilization project, knowledge brokers facilitate the movement of knowledge and ideas between these different communities. They serve as a form of “linguistic creator” (Meyer, 2010, p. 121), forming a shared language system through which meaning can be established and communicated. The knowledge that they then share within this network is more accessible, having been “de- and reassembled” (Meyer 2010, p. 123) to ground it within local and temporal frameworks of understanding for different audiences.

Knowledge brokers have proven to be the most effective and impactful where there are diverse knowledge sources or communities that do not normally interact or which are normally inwardly focused (Long et al., 2013). In these situations, the knowledge broker can benefit the different communities by bringing them together and synthesizing their ideas and knowledge in new ways, so as to bridge the gap and be relevant to the different communities involved (Long et al., 2013). In the case of bioarchaeological knowledge mobilization, the long-term separation of academic and applied anthropologies has resulted in a view of research as belonging to the domain of academia, limiting the reach of communication around bioarchaeological findings. However, as Kreps (2020) articulates, the public museum serves as an exception to this, as the dedication to engagement in museum spaces has resulted in a merging of academic and applied anthropologies and allows them to bring anthropological theory and practice to wider audiences. This positionality of the museum makes it an ideal knowledge broker for bioarchaeological knowledge mobilization projects.

## 1.4 Project Aims and Significance

Museums in the 21<sup>st</sup> Century have prioritized becoming spaces for education and engagement (Falk & Dierking, 2013; Kreps, 2020). As a result, museums may serve as dedicated spaces where wider audiences can have access to, and engage with, the knowledge gained from bioarchaeological research. In many cases, museums may be the primary places where people can connect with this research in an accessible and meaningful way. As the previous section highlighted, this positionality means that they have the potential to act as a form of knowledge broker in the bioarchaeological knowledge mobilization process. They have the capacity to serve as facilitators –

bringing researchers, descendant communities, and the wider public together as interlocutors in the discussion – and to create a space where various voices may be heard. Therefore, the museum provides an excellent space to define and explore the bioarchaeological knowledge mobilization process.

With this in mind, this thesis uses interviews with 16 museum professionals (curators, educators, and associated bioarchaeologists), a review of 38 current and past (post-2016) museum exhibit websites, and a case study of bioarchaeological knowledge mobilization in Guanajuato, Mexico, to investigate the question: *How might bioarchaeological knowledge be mobilized for the benefit of diverse museum communities in ways that present bioarchaeological research both accurately and appropriately?*

The purpose of this investigation is to explore the role of the museum as a knowledge broker in the bioarchaeological knowledge mobilization process, using the information gained from this research to provide insight into the goals of these projects and the practices that lead to their success. Through these explorations, this thesis aims to provide museums and researchers with insight and guidance on the complex factors involved in the bioarchaeological knowledge mobilization process in order to inform and facilitate future policy and practice for museums and research.

## 1.5 Methods and Materials

The methodological approach to this thesis is three-pronged. First, the use of semi-structured interviews with museum professionals is intended to provide a professionally informed framework of understanding regarding the goals, outcomes, and practices of successful bioarchaeological knowledge mobilization projects. Second, an analysis of

bioarchaeological museum exhibit websites is meant to highlight areas where the museum professional perspectives on bioarchaeological knowledge mobilization established within the first part of this project overlap with current museum practices, as well as demonstrate areas where development within the field may still need to be focused. Last, I present a case study of my personal experience with bioarchaeological knowledge mobilization in Guanajuato, Mexico, grounding the previous discussions within a specific and detailed example. This is meant to emphasize the contextual nature of bioarchaeological knowledge mobilization projects and explore the ways in which the implementation of elements discussed in this thesis can help in addressing the diverse needs of a museum's communities.

For the first part of my approach, participants were recruited from my own professional networks, as well as those of Dr. Andrew Nelson, my supervisor, and Denise Pozzi-Escot, director of the Museo Pachacamac in Peru. Participants were recruited to discuss their role as professionals within the museum context. The term "professional" was broadly defined in the context of this project as people who contribute(d) to projects intended to convey information about human remains housed in museums to the public. All individuals who gave a positive response to the recruitment email were interviewed. As a result, the participants of this study do not form a representative sample of all museum professionals, though that does not detract from the value of their lived experience and expertise in contributing to this thesis. Those interviewed had museum experience in at least one of the following categories: curation, direction, repatriation, public programming and education, or bioarchaeological research. Their educational and/or professional backgrounds were in Canada, the United States, England, Peru, and

France. A list of participants and their relevant background and experience are provided in Table 1 below, with participants' identities being represented by a two-letter pseudonym determined by the author.

Table 1. A list of the study participants and their relevant experience, as indicated by their interview responses.

<b>Participant Identifier</b>	<b>Relevant Experience</b>	<b>Geographic Backgrounds</b>
AR	Archaeoentomologist; Researcher for a museum project <i>Master's degree in Archaeology, Master's degree in archaeoentemology, PhD in Bioarchaeology</i>	France, Canada, Peru
BA	Bioarchaeologist; Research Assistant for a museum project <i>MA student in Bioarchaeology</i>	Canada, Peru
BC	Bioarchaeologist; Curator <i>Master's degree in Bioarchaeology and Forensic Anthropology</i>	Peru
CF	Adjunct Professor; Curator; Bioarchaeologist <i>MA in Bioarchaeology and Forensic Anthropology</i>	Peru, Canada
CM	Collections Registration and Management Archaeologist	Peru
DB	Bioarchaeologist; Co-director of a museum project <i>Master's degree in Andean Studies with a focus on Archaeology; Master's degree in bioarchaeology, PhD in Anthropology</i>	Peru, Canada
EE	Egyptologist; Museum Educator/Public Programming; Curator <i>MA in Egyptian language and literature</i>	Canada
EM	Curator <i>License in Egyptology, degree in Museology, PhD in Egyptology</i>	The UK, Switzerland
FB	Bioarchaeologist; Visiting researcher for a museum project; Autopsy Technician; Field Archaeologist <i>Master's degree in Forensic Anthropology, PhD in Bioarchaeology</i>	United States, Canada, Peru
FR	Archaeologist and educator within a museum context, experience in bioarchaeological and forensic analysis <i>Degree in Archaeology</i>	Peru

HH	Architect for a museum <i>Master's degree in Housing, with additional training in archaeological heritage and preservation</i>	Peru
MD	Professor of Anthropology; Museum Director; Researcher (archaeological and bioarchaeological contexts)	United States, Peru
PA	Curator of Physical Anthropology; Assistant Curator; Museum Lab Technician <i>Master's degree in Anthropology, PhD in Biological Anthropology</i>	United States
RC	Professor of Digital Imaging; Radiographer (including bioarchaeological and forensic contexts); Curator	United States, South America, Europe, Peru
RS	Repatriation Specialist; Commercial Archaeologist; Biological Anthropologist; Contract Osteologist	Canada, United States
SG	Supervising Archaeologist, performing museum visitor tours; Educational and research support in a museum project <i>Degree in Archaeology</i>	Peru

A pre-established list of questions was used to initiate and guide conversations, creating a semi-structured format for the interviews. Questions for the interview guide were created with the intention of addressing how participants conceived of bioarchaeological knowledge, who they thought the audiences of this knowledge were, and how the museum navigated visitor interactions with bioarchaeological subjects. The use of the semi-structured interview format was meant to provide some guidance within the interviews, while being open-ended enough to allow for participants to share and expand upon their own perceptions of their work.

Interviews began in August 2021, after initial ethics approval for the project was received, and finished in July 2022, after approval was given for participant-facing Spanish documents. Ethics approval documentation is provided in Appendix A. Due to the Covid-19 pandemic, interviews were conducted online via Zoom. In the case of two interviews, internet connectivity issues prevented a successful dialogue from occurring

orally for part of the interview. To mitigate this issue, the questions for that portion of the interview were sent to the participants in written form and the participants gave written responses back. Interviews lasted between 30 minutes to 1.5 hours and took place in either English or Spanish, with Spanish interviews facilitated by an interpreter. The interpreter also provided a typed document that summarized the key information from the participants' responses to each question.

Following the interview process, a transcript of each interview was created from the audio recording, taking care to ensure accurate representations of participant statements and intentions. Due to my limited capabilities with oral Spanish, analysis of the Spanish interviews derives largely from the interpreter's presentation of participant responses. However, wherever possible, comparisons were made to participants' original Spanish responses to verify that the meaning and sentiment of their statements were maintained. My own translations of Spanish participants' responses in these cases were done with the aid of online dictionaries, such as Word Reference and Google Translate. All written transcripts were then coded in NVivo 12 and later, 14, to identify recurring themes related to overarching ideas about the museum's role in the bioarchaeological knowledge mobilization process, the purpose of these projects, and elements of effective practice.

For the second part of my methodological approach, I identified bioarchaeological museum exhibit websites for analysis by using Google to perform the following English language searches: "museum exhibits, mummies," "museum exhibits, human remains," "museum exhibits, skeletal remains," "museum exhibits, bog bodies," and "museum exhibits, fardos." The aim of these searches was to identify exhibits which featured a large bioarchaeological component and which were connected to the geographical areas

that aligned with the experience of my participants. In some cases, a geographic location, such as Peru, was specified to refine the results and achieve the intended goal.

Ultimately, I identified 38 websites that were created for exhibits which were active sometime between 2016 and present in Canada, the United States, England, Peru, Ireland, Spain, Egypt, and Denmark. Exhibit websites were collected in two rounds. The initial round of data collection took place between July and October of 2021, and resulted in the identification of 16 websites centered in American, Canadian, and British contexts. The remaining 22 websites were identified in February of 2024, and expanded the geographical and temporal scope of the previous data. Of these 38 websites, approximately 65 percent of them belonged to exhibits that were currently in progress at the time of data collection and analysis. Table 2 below details the title of each exhibit, the museum to which it belonged, the country in which it took place, the year the exhibit closed (if it was not still ongoing), and the web address (if it was still available). It is important to note that while most of these museum exhibit websites aligned with the geographic areas connected with the participants of this study, they were not necessarily museums specifically associated with the participants.

Table 2. List of museum exhibits whose websites were studied.

<b>Exhibit</b>	<b>Museum</b>	<b>Country</b>	<b>End Year</b>	<b>Website Address</b>
Mummies	American Museum of Natural History	United States	2018	<a href="https://www.amnh.org/exhibitions/mummies">https://www.amnh.org/exhibitions/mummies</a>
Mummies of the World	Bowers Museum	United States	2016	<a href="https://www.bowers.org/index.php/past-exhibition/mummies-of-the-world">https://www.bowers.org/index.php/past-exhibition/mummies-of-the-world</a>
Elaine Evans Archaeology Gallery	Brighton Museum	England	Ongoing	<a href="https://brightonmuseums.org.uk/brighton-museum-art-gallery/what-to-see/elaine-evans-archaeology-gallery/">https://brightonmuseums.org.uk/brighton-museum-art-gallery/what-to-see/elaine-evans-archaeology-gallery/</a>

Egyptian Mummies and Eternal Life	History Museum of Mobile	United States	2021	<a href="https://www.historymuseumofmobile.com/egyptian-mummies-and-eternal-life">https://www.historymuseumofmobile.com/egyptian-mummies-and-eternal-life</a>
Mummies of the World	Houston Museum of Natural Science	United States	2017	<i>Unavailable</i>
Hall of Ancient Egypt	Houston Museum of Natural Science	United States	Ongoing	<a href="https://www.hmns.org/exhibits/hall-of-ancient-egypt/">https://www.hmns.org/exhibits/hall-of-ancient-egypt/</a>
The Future of the Past: Mummies and Medicine	Legion of Honor	United States	2019	<a href="https://www.famsf.org/exhibitions/future-past-mummies-and-medicine">https://www.famsf.org/exhibitions/future-past-mummies-and-medicine</a>
Egyptian Mummies: Exploring Ancient Lives	Montréal Museum of Fine Arts	Canada	2020	<a href="https://www.mbam.qc.ca/en/exhibitions/egyptian-mummies-exploring-ancient-lives/">https://www.mbam.qc.ca/en/exhibitions/egyptian-mummies-exploring-ancient-lives/</a>
Mummies Gallery	Museum of Fine Arts Boston	United States	Ongoing	<a href="https://www.mfa.org/gallery/mummies">https://www.mfa.org/gallery/mummies</a>
Ancient Egypt	Museum of Us	United States	Ongoing	<a href="https://museumofus.org/exhibits/ancient-egypt">https://museumofus.org/exhibits/ancient-egypt</a>
Egypt: The Time of Pharaohs	Natural History Museum of Utah	United States	2022	<a href="https://nhmu.utah.edu/exhibitions/egypt-time-pharaohs">https://nhmu.utah.edu/exhibitions/egypt-time-pharaohs</a>
Golden Mummies of Egypt	North Carolina Museum of Art	United States	2021	<a href="https://ncartmuseum.org/exhibition/golden-mummies-of-egypt/">https://ncartmuseum.org/exhibition/golden-mummies-of-egypt/</a>
Egyptian Mummies & Eternal Life	Novia Scotia Museum	Canada	2020	<a href="https://museum.novascotia.ca/event/egyptian-mummies-and-eternal-life#:~:text=In%20ancient%20Egypt%20C%20death%20was, had%20to%20be%20preserved%20forever.">https://museum.novascotia.ca/event/egyptian-mummies-and-eternal-life#:~:text=In%20ancient%20Egypt%20C%20death%20was, had%20to%20be%20preserved%20forever.</a>
Ancient Egypt: From Discovery to Display	Penn Museum	United States	Ongoing	<a href="https://www.penn.museum/on-view/galleries-exhibitions/ancient-egypt">https://www.penn.museum/on-view/galleries-exhibitions/ancient-egypt</a>

Mummies of the World: The Exhibition	St. Louis Science Center	United States	Ongoing	<a href="https://www.slsc.org/mummies-of-the-world-the-exhibition/">https://www.slsc.org/mummies-of-the-world-the-exhibition/</a>
Eternal Life in Ancient Egypt	Smithsonian National Museum of Natural History	United States	Ongoing	<a href="https://naturalhistory.si.edu/exhibits/eternal-life-ancient-egypt">https://naturalhistory.si.edu/exhibits/eternal-life-ancient-egypt</a>
Egyptian Death & Afterlife: Mummies	British Museum	England	Ongoing	<a href="https://www.britishmuseum.org/collection/galleries/egyptian-death-and-afterlife-mummies">https://www.britishmuseum.org/collection/galleries/egyptian-death-and-afterlife-mummies</a>
Exploring Ancient Lives	British Museum	England	Ongoing	<a href="https://www.britishmuseum.org/our-work/international/international-touring-exhibitions/egyptian-mummies-exploring-ancient-lives">https://www.britishmuseum.org/our-work/international/international-touring-exhibitions/egyptian-mummies-exploring-ancient-lives</a>
Egyptian Mummies: Ancient Lives, New Discoveries	Royal Ontario Museum	Canada	2020	<a href="https://www.rom.on.ca/en/exhibitions-galleries/exhibitions/egyptian-mummies-ancient-lives-new-discoveries">https://www.rom.on.ca/en/exhibitions-galleries/exhibitions/egyptian-mummies-ancient-lives-new-discoveries</a>
The Mummies: From Egypt to Toledo	Toledo Museum of Art	United States	2018	<a href="https://toledomuseum.org/exhibitions/the-mummies-from-egypt-to-toledo">https://toledomuseum.org/exhibitions/the-mummies-from-egypt-to-toledo</a>
Mummies Hall	National Museum of Egyptian Civilization	Egypt	Ongoing	<a href="https://nmec.gov.eg/mummies-hall/">https://nmec.gov.eg/mummies-hall/</a>
Inside Ancient Egypt	FIELD Museum	United States	Ongoing	<a href="https://www.fieldmuseum.org/exhibitions/inside-ancient-egypt">https://www.fieldmuseum.org/exhibitions/inside-ancient-egypt</a>
Mumias de Egipto: Redescubriendo Seis Vidas <i>Mummies of Egypt: Rediscovering Six Lives, (translated by author)</i>	Caixa Forum	Spain	2024	<a href="https://caixaforum.org/es/zaragoza/p/mumias-de-egipto_a164394070">https://caixaforum.org/es/zaragoza/p/mumias-de-egipto_a164394070</a>
The Mummy Chamber	Brooklyn Museum	United States	Ongoing	<a href="https://www.brooklynmuseum.org/opencollection/exhibitions/3215">https://www.brooklynmuseum.org/opencollection/exhibitions/3215</a>

Egyptian Mummies	Denver Museum of Nature and Science	United States	Ongoing	<a href="https://www.dmns.org/visit/exhibitions/egyptian-mummies/">https://www.dmns.org/visit/exhibitions/egyptian-mummies/</a>
Mummies: A Unique Exhibition	Amarna Centre	England	Ongoing	<a href="https://www.mummiesexhibition.co.uk/">https://www.mummiesexhibition.co.uk/</a>
Mummies of the World: The Exhibition	Playhouse Square	United States	2024	<a href="https://www.playhousesquare.org/events-tickets/events/mummies-of-the-world-the-exhibit">https://www.playhousesquare.org/events-tickets/events/mummies-of-the-world-the-exhibit</a>
Mystery of the Mummy	Kalamazoo Valley Museum	United States	Ongoing	<a href="https://kalamazoomuseum.org/exhibits/mystery-of-the-mummy">https://kalamazoomuseum.org/exhibits/mystery-of-the-mummy</a>
Grauballe Man	Moesgaard Museum	Denmark	Ongoing	<a href="https://www.moesgaardmuseum.dk/en/exhibitions/permanent-exhibitions/grauballe-man/">https://www.moesgaardmuseum.dk/en/exhibitions/permanent-exhibitions/grauballe-man/</a>
Kingship and Sacrifice	National Museum of Ireland	Ireland	Ongoing	<a href="https://www.museum.ie/en-IE/Museums/Archaeology/Exhibitions/Kingship-and-Sacrifice">https://www.museum.ie/en-IE/Museums/Archaeology/Exhibitions/Kingship-and-Sacrifice</a>
Ancient Egypt	Louisiana Art and Science Museum	United States	Ongoing	<a href="https://www.lasm.org/exhibitions/permanent/ancient-egypt">https://www.lasm.org/exhibitions/permanent/ancient-egypt</a>
Hyrtl Skull Collection	Mütter Museum	United States	Ongoing	<a href="https://muttermuseum.org/on-view/hyrtl-skull-collection">https://muttermuseum.org/on-view/hyrtl-skull-collection</a>
The Soap Lady	Mütter Museum	United States	Ongoing	<a href="https://muttermuseum.org/on-view/soap-lady">https://muttermuseum.org/on-view/soap-lady</a>
Golden Mummies of Egypt	Manchester Museum	England	Ongoing	<a href="https://www.museum.manchester.ac.uk/whats-on/golden-mummies/">https://www.museum.manchester.ac.uk/whats-on/golden-mummies/</a>
Anthropología Física <i>Physical Anthropology (translated by author)</i>	National Museum of Archaeology, Anthropology, and History of Peru	Peru	Ongoing	<a href="https://mnaahp.cultura.pe/colecciones/antropologia-fisica">https://mnaahp.cultura.pe/colecciones/antropologia-fisica</a>
Death in the Ancient Peru	Museo Larco	Peru	Ongoing	<a href="https://www.museolarco.org/en/exhibitions/permanent-exhibition/online-exhibition/death-in-the-ancient-peru/">https://www.museolarco.org/en/exhibitions/permanent-exhibition/online-exhibition/death-in-the-ancient-peru/</a>

Galerie de l'Homme	Musée de l'Homme	France	Ongoing	<a href="https://www.museedelhomme.fr/en/galerie-de-l-homme">https://www.museedelhomme.fr/en/galerie-de-l-homme</a>
Egyptian Collection	Derby Museum and Art Gallery	England	Ongoing	<a href="https://derbymuseums.org/collection/egyptian/">https://derbymuseums.org/collection/egyptian/</a>

All exhibit websites were analyzed together in 2024, examined in comparison with participants' ideas about the role of the museum in the bioarchaeological knowledge mobilization process, its goals, and the elements of effective practice as discussed in Chapters 2 and 3 of this thesis. I reviewed each site and made notes about how the content did or did not align with what my participants had discussed before drawing these different observations together into a discussion about larger patterns of behaviour. Specifically, I examined each website for the inclusion of definitions of terminology, the incorporation of bioarchaeological concepts and methods, interactivity (whether on the site itself or discussions of its inclusion within the exhibit), attempts at transparency or inviting dialogue or collaboration, and the implications of the content had for the humanization or objectification of human remains. While this sample of museum exhibits obviously does not provide an all-encompassing view and privileges primarily English websites, it serves to provide a glimpse into both larger, national, and smaller, regional, museum approaches to bioarchaeological exhibits in various countries.

Lastly, the case study draws on the five days I spent in the city of Guanajuato, Mexico in June 2023, participating in the Academic Conference in Death being held at the University of Guanajuato. This conference was organized to accompany a photographic exhibition, *Tierra Ósea*, which was on display at the university. The exhibition featured the Guanajuato mummies, a large group of natural mummies from the region. The conference featured a number of live lectures, given and recorded over the months of

April, May, and June 2023. The lectures centered on diverse topics related to the study of death/the dead and were delivered by various professionals from different fields. I was invited by my supervisor, Dr. Andrew Nelson, to contribute a bioarchaeological knowledge mobilization perspective to the presentation he was giving with Gerald Conlogue and Ronald Beckett (Quinnipiac University), which contextualized the research of the Guanajuato mummies within the larger field of bioarchaeological research (Nelson & Muggridge, 2023). During our time in Guanajuato, Michael James Wright, the photographer featured in the exhibition, and other members of the Tierra Ósea team provided us with guided tours around the city and the various locations connected to the city's mummies. Participation in the academic conference in conjunction with our time spent with publicly facing materials associated with the Guanajuato mummies in various locations in the city, generated plenty of opportunities to examine bioarchaeological knowledge mobilization practices in Guanajuato.

## 1.6 Thesis Organization

There are five chapters to this thesis. This first introductory chapter has given an overview of the project's aims and significance, as well as its methods and materials. It has also served as a brief review of essential concepts from the literature regarding knowledge mobilization, the museum, and bioarchaeology that will help to frame the discussions in this thesis. From this review, we have conceptualized knowledge mobilization as it relates to the distinctive features of bioarchaeological research and museums, highlighting the role of value and impact in these processes. Additionally, it has outlined some of the major issues that museums face as they work with the complex and uniquely situated nature of the human remains housed in their collections.

Discussion of the project's findings begins in Chapter 2 with an examination of how museum professionals view the role of the museum in the bioarchaeological knowledge mobilization process and the outcomes that they desire. In exploring this topic, the chapter also investigates how the humanization of human remains contributes to the creation of scientific and sociocultural impact and value. Following this discussion, Chapter 3 then looks to more specific aspects of the bioarchaeological knowledge mobilization process, identifying practices that were flagged by professionals as integral. Of particular interest are themes of accessibility, accuracy, appropriateness, language, foundational bioarchaeological concepts, interactivity, dialogue, cultural sensitivity, and collaboration.

Chapter 4 aims to put participants' perspectives regarding the purposes, outcomes, and necessary elements of bioarchaeological knowledge mobilization into conversation with demonstrated museum practice. The chapter begins with a discussion of the concept of praxis – where knowledge is derived from both theory and practice, which reciprocally inform one another (Kreps, 2020) – before examining bioarchaeological museum exhibit websites for features of bioarchaeological knowledge mobilization identified by participants. The result is a discussion of incongruencies between theory and practice in the current bioarchaeological knowledge mobilization sphere and barriers that may contribute to this discordance. These analyses are followed by a case study on bioarchaeological knowledge mobilization in Guanajuato, Mexico. This case study extends the previous discussion of museum websites to explore the Museo de las Momias de Guanajuato's approach to bioarchaeological knowledge mobilization in their digital and physical spaces. The result is an exploration of the deeply contextual nature of these

projects, and how these contexts may influence the perceived role of the museum, its level of engagement with bioarchaeological knowledge mobilization, and the complex relationships that can exist between a museum and its associated communities. In exploring these issues, this chapter also examines how the incorporation of bioarchaeological knowledge mobilization practices outlined in this thesis have the potential to aid museums in addressing the varied needs and concerns of their communities.

Chapter 5 concludes this thesis, drawing together the professional conceptions of bioarchaeological knowledge mobilization discussed in Chapters 2 and 3 and the explorations of real-world bioarchaeological knowledge mobilization projects in Chapter 4 to generate a practical framework of key questions and considerations for the effective mobilization of knowledge regarding bioarchaeological materials. Additionally, this chapter explores the limitations of this study and identifies potential avenues for future research.

## Chapter 2

### 2 The Role of Museums in the Bioarchaeological Knowledge Mobilization Process

This chapter analyzes participants' perspectives regarding museum engagement and the content and outcomes of bioarchaeological knowledge mobilization projects in order to reveal what these professionals perceive to be the purpose, value, and impact of museum bioarchaeological knowledge mobilization projects.

#### 2.1 Defining the Role of the Museum

With regard to the role of the museum in the bioarchaeological knowledge mobilization process, all of the museum professionals I interviewed (also referred to throughout this thesis as “participants”) shared the idea that museums today must have a larger purpose than storage and display. It is no longer considered acceptable for museums to solely exist as repositories of collections. For many, the museum must work to balance the research done within the museum's walls with the sharing of that research. As one participant, BC, suggested, there is no reason for a museum to exist if it is not working to create and diffuse knowledge.

While my participants resisted the idea of the museum as simply a building that holds collections – and strongly emphasized the need for connection between audiences and the subject of their educational efforts – the physical museum building was considered as an important facet of the museum's educational capacities for some participants. These individuals indicated that the museum, as a physical space, provides a dedicated place where many people feel they can come and interact with bioarchaeological knowledge

and materials, as well as with experts on these matters. Conceiving of the museum in this way can allow for more of an open access model, allowing members of the wider public access to, and interaction with, subjects and materials that would otherwise largely be restricted to the academic or research sphere. In doing so, the museum may foster connections between the present and the past by making knowledge tangible in ways that are lacking in other public educational sources, such as articles, videos, blogs, and conference presentations. Regarding bioarchaeological knowledge mobilization projects specifically, participants who worked with exhibits that feature human remains expressed that making human remains more tangible can aid in connecting the public with the realities and humanity of past peoples. In other words, the museum is able to share complex and diverse stories about individuals and the past by giving its publics the opportunity to gain insight into genuine mortuary treatment and conditions, as well as a better understanding of what human remains can teach us via bioarchaeological methods. One participant articulated this as being able to “let people meet them, really meet them” (EE).

While some participants spoke of education as a purpose unto itself, several participants also spoke of education as a mechanism by which to accomplish a much larger social role. Museum professionals recognized that the audiences of museums can play a large role in preserving heritage, whether directly through their actions or through more indirect means, such as their impacts (as representatives of public interest) on funding sources, advocacy for policy change, etc. Therefore, through their educational goals, museums were seen by a number of participants as playing a role in shaping society. Bioarchaeological knowledge mobilization for many of these participants was not simply

about illustrating the things we learn about an individual through bioarchaeological methods, but about working to integrate bioarchaeological knowledge mobilization within the whole culture – taking into account both past and present contexts of the remains, the research, and the museum. By working to connect present communities to those of the past, some museum professionals feel that they can support community development and aid in the establishment of cultural identity. These participants expressed that making the cultural and scientific contexts of bioarchaeological collections accessible in different ways for the different communities and audiences who the museum serves can go a long way in creating dialogues and working relationships between the museum and local and/or descendant communities.

The success of museums' attempts at community development are exemplified by the Museo Pachacamac in Peru. Articles written by staff of the museum highlight different outreach programs that the museum has been developing and implementing with local communities regarding cultural heritage knowledge and protection (Pozzi-Escot et al., 2015; Pozzi-Escot et al., 2019). As a state-funded museum that is located at an important archaeological site surrounded by urbanized communities, the Museo Pachacamac has made it a goal to create educational programs that work to align values between local communities and the museum and to increase public knowledge regarding Pachacamac (Pozzi-Escot et al., 2015). Published work about the museum's aims continuously reinforces the focus on these relationships and their maintenance as both essential to the site's conservation and beneficial to community identity and archaeological preservation (Pozzi-Escot et al., 2015; Pozzi-Escot et al., 2019).

However, it must also be acknowledged that while museums can contribute to positive community development, the colonial origins of museums in countries such as Britain, the United States, and Canada make for a lot of complex relationships and feelings between many descendant communities and museums, particularly in regard to human remains. As a result, many individuals may find museums represent violent intentions and might not feel welcome within museum spaces or trust these institutions to engage in good faith collaborations. Exploring repatriation, restorative justice, and reconciliation within museums, Meloche (2022) references the work of Nicholas & Smith (2020) and Thornton (2020), acknowledging that:

Archaeological materials and museum spaces were used to justify European superiority and colonial sovereignty. These actions were (and are) a direct form of colonial violence that has contributed to intergenerational traumas that are still felt by Indigenous communities around the world today (p. 19).

Several participants recognized that understanding and addressing the violence and hurt of these histories and their continuing legacies is an essential part of any bioarchaeological knowledge mobilization project. Additionally, many felt that the museum has a role to do its best in facilitating descendant communities' connections with their ancestors who are still housed in museum collections, whether through repatriation or community-led educational projects.

In discussing these complexities, two participants spoke with me about museum attempts to build relationships and trust with Indigenous communities in the United States via capacity building. They expressed that while Indigenous communities often request that museums do not study their ancestors, there had been some interest expressed by Indigenous monitors of archaeological sites in the area surrounding the museum to know

how to distinguish between human and non-human remains in archaeological contexts. Both museums offered courses for these monitors on human osteology, which involved creating a dialogue between the museum staff and participants in the course to determine the most culturally appropriate and respectful way for the subject material to be taught in accordance with the community's values. The goal of these projects was to build knowledge and capacity for these skills within the interested communities so that they may exercise greater autonomy over their history and their ancestors. In removing some of the authority from the museum space and engaging with the community, these projects served to create an ongoing dialogue between these communities and the museums involved and have also built foundations for the future incorporation of Indigenous voices and participation in these museum spaces<sup>4</sup>.

## 2.2 Fostering Connection

In the above discussed roles of the museum – creating a space for the public to engage with bioarchaeological knowledge and collections; shaping societal identities and understandings by connecting the present with the past; and building relationships with local and descendant communities – we see an ultimate overarching role of the museum as a knowledge broker. As established in the introductory chapter of this thesis, knowledge brokers serve to bridge gaps that may exist between different interested/affected groups or facets in a knowledge mobilization project; they work to foster connection. From this understanding of the role of the museum, the next question

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<sup>4</sup> I would like to emphasize that while this is a step in the right direction towards incorporating Indigenous voices within the museum, the professionals I spoke with acknowledged that there is still more to be done to improve these relationships and work towards reconciliation.

then becomes: What are the areas of connection that the museum aims to generate and what are the ways in which they accomplish this goal?

Analyses of participant interviews indicate that there are two main areas of disconnect that the museum works to overcome in the bioarchaeological knowledge mobilization process: time (resulting from the temporal separation of past and present), and accessibility (resulting from the separation of academic and non-academic contexts). In order to bridge these gaps and foster connection in these areas, the museum must work to recontextualize bioarchaeological knowledge for its audience, making it relevant and meaningful to them (Meyer, 2010). In other words, the museum must provide the foundations for interested/affected groups involved in these projects to engage in a way that is valuable to them, so that bioarchaeological knowledge may achieve some form of community impact.

Analysis of participant discussions of bioarchaeological knowledge mobilization processes highlighted professional approaches to be some form or combination of the following: 1) sharing about the past through the stories of people who lived then, and 2) sharing scientific knowledge about things that are relevant to humans as a species. Underlying both of these narratives is one central point of connection: the shared humanity between museum audiences of bioarchaeological knowledge and the once-living people who they are learning from. It is important to recognize this point of connection, as various factors, such as the different levels and types of preservation of human remains or an individual's own personal experiences with death and funerary practices, may cause museum visitors to experience a cognitive disconnect between what they see in bioarchaeological exhibits and their recognition of these remains as human.

This can be seen in Kilmister's (2003) research of visitor perceptions of Egyptian human remains in UK museums, where they found that only 11 responses out of the 300 that they received specifically associated mummies with their definition of human remains despite mummies being part of the displays in the exhibits in question. Even within the field of bioarchaeology itself, there are many examples which highlight a history of sterilization or distancing of the discipline from the once-living individuals at the center of this research, presenting them as objects rather than people (Fabian, 2010; Moshenka, 2014; Redman, 2016; Redman, 2022; Roque, 2018).

When museums begin from a place where human remains are recognized as people, the museum is then able to frame its bioarchaeological knowledge mobilization projects in a way that combats sensationalism, fear, discomfort, etc. and engage with the stories that the people of the past can tell us about their lived experiences through bioarchaeological methods. In articulating this information to wider audiences, the museum can show past societies as being made up of real, multidimensional people who have names, lives, personalities, beliefs, cultures, and connections to past and present communities, rather than portraying them as caricatures or oversimplified stereotypes. They also create the potential to move away from previous conceptions of human remains as just another set of objects in museum collections and provide a plethora of avenues in which museum visitors may form further connections. As one participant stated, "I don't think there is any one way [to] interact with human remains. And I think that's something which is quite fundamental. I mean, we are talking about us as humans that died quite a long time ago... Everything is really human stories. So, any kind of level of stories is going to

touch you in a different way. So, I think it's really great. It will differ from one person to another” (EM).

## 2.3 The Creation of Value

In its construction of narratives of human remains as people, the museum provides its audiences with opportunities for experience and engagement, which are considered two important methods of value creation in the museum context (Herle, 2022). It invites its audiences to participate in dialogues connecting the past and present through their own experiences and generates a space for its visitors to participate in the co-creation of value in relation to bioarchaeological knowledge. This is extremely important as knowledge mobilization must be a collaborative effort in order to be effective (Bennet & Bennet, 2007). It is not a process that you can force someone into; all parties must be willing and wanting to participate. This point was well-articulated by a participant, RS, through the metaphor of a door. In their opinion, museum professionals must work to open the door for interaction with people, but they cannot control whether or not people actually walk through that door. Ultimately, it is the choice of the museum visitor as to whether they wish to engage, and that engagement has to be the product of their own volition in order for the interaction to be successful.

In the case of bioarchaeological museum exhibits, it may be possible that this willingness to engage in the knowledge mobilization process is more readily present for many museum visitors than other types of exhibits. A number of participants expressed that human remains are a topic of interest to many visitors in museum spaces and may even be the reason why some people decide to visit the museum. This may be particularly true in places where a focus on bioarchaeology is largely contained in travelling exhibits

which visit for set periods of time rather than in the permanent exhibits at an audience's local museums. An example of this type of travelling exhibit is the British Museum's (n.d.). Egyptian Mummies: Exploring Ancient Lives, which is currently on display in Spain and has previously been at the Royal Ontario Museum and the Montréal Museum of Fine Arts in Canada, among many others around the world. While participants discussed several factors that might interest people about human remains, a number of them identified morbid curiosity or sensationalism as likely factors in why visitors initially were drawn to human remains. Another draw may be the mystery associated with human remains, particularly mummies, and their untold stories. However, while many visitors may be drawn to exhibits due to this morbid curiosity or sensationalism, the participants here felt that, in most cases, people who visit bioarchaeological exhibits and engage with their content, leave having learned something about the individual, the past, and/or the science of bioarchaeology.

### 2.3.1 Scientific Value

Probably the value most commonly associated with the bioarchaeological knowledge mobilization process is scientific value. Participant perceptions about the impacts of this type of value usually centered on the following outcomes: dispelling myths about past people and societies; developing a deeper understanding of one's own body; becoming invested in bioarchaeological research and preservation; and recognizing scientific and medical developments across time and place. For many, it was important for them to not only share the conclusions of bioarchaeological research, but also provide explanations for lay audiences about what bioarchaeologists do, the methods they use, and the limitations of this research. In doing this, they felt they helped visitors to build a basic but

accurate understanding of bioarchaeological research and practice, as well as its purposes. Their hope was that museum visitors would be able to utilize their knowledge beyond the single museum exhibit and critically engage with bioarchaeological knowledge in various contexts, including popular media. Overall, participants believed that in giving visitors some control over their experience and allowing them to explore their own questions, they became more invested in bioarchaeological preservation and education.

### 2.3.2 Sociocultural Value

Building upon this scientific value, several participants also perceived bioarchaeology as an important tool that allows visitors to see beyond the physical remains to the people behind them. For them, bioarchaeology is able to tell stories grounded in real life by giving real information about who people were and what their lives were like. As one participant stated: “I think the only way to get to the humanism is through the hard science. Otherwise, it’s just fantasy” (EE). Participants felt that in giving insight into an individual’s life history through various factors, such as age, sex, pathological conditions, and burial artifacts, bioarchaeological research is able to give audiences deeper insight into the contexts of past societies and aid them in creating new understanding and meaning around this knowledge; bioarchaeological knowledge mobilization creates sociocultural value. This type of value was seen in outcomes like demonstrating a fuller understanding of, and investment in, past societies or developing an appreciation for interdisciplinary approaches and the complex stories they tell.

In disseminating information about past societies, bioarchaeological knowledge mobilization projects also serve to create other forms of sociocultural value. Participants

recognized that bioarchaeological knowledge holds significance to people and can have an immense impact on them. In our discussions, several professionals acknowledged the importance of remembering that they are always talking about someone's ancestor(s) when sharing bioarchaeological knowledge. As a result of this, several participants spoke of the inherent need in bioarchaeological research and knowledge mobilization projects to have a purpose and be in some way culturally enriching to people. For some, this meant that museums should be working to connect the research and skills of bioarchaeologists with the histories and interests of local and descendant communities to become community-based centers. They felt in doing this, museums have the ability to incorporate bioarchaeological knowledge mobilization into larger community projects. The impact of this sociocultural value creation was highlighted by participant discussions around outcomes such as: the validation and shaping of community identities; the dispelling of racist ideas about past populations that still impact communities today (especially those that academic institutions had a hand in creating and/or perpetuating); the establishment of relationships between the museum and local communities; the identification of the museum as a space for community; and the return of autonomy and authority to descendant communities.

## 2.4 Museums as Bioarchaeological Knowledge Brokers

This chapter has shown how museum professionals see the museum as a space dedicated to fostering connection, functioning as a bridge between the academic space of the researcher and the daily lives of its publics. By sharing the stories of individuals, emphasizing the shared humanity of museum visitors and people of the past, and

allowing individuals to experience the way these stories are reflected in the archaeological record, museums can make the past accessible to individuals in the present in tangible and meaningful ways. Participants also shared how in creating a less authoritative and more participatory museum space, the museum is able to generate opportunities for the co-creation of scientific and sociocultural value and can produce deeper and more varied engagement with bioarchaeological knowledge. This was seen by professionals to have the potential for far-reaching impacts, including a deeper investment in bioarchaeological preservation and education, community development, challenging pseudoscientific explanations, and improved museum-descendant community relationships.

## Chapter 3

### 3 Elements of Effective Bioarchaeological Knowledge Mobilization

The previous chapter explored museum professionals' perspectives on the purpose of bioarchaeological knowledge mobilization projects and the museum's role in them. These discussions suggested that museum knowledge mobilization projects should work to support visitor opportunities for experience and engagement in order to generate dialogue between the past and present and create spaces for visitors to play an active and collaborative role in the co-creation of knowledge about bioarchaeological subjects. In doing so, the museum attempts to create scientific and/or sociocultural value for each member of the interested/affected groups in the knowledge mobilization process so that this knowledge may have an impact. With this understanding of the goals of the bioarchaeological knowledge mobilization process, it is important to understand the various factors which may allow these ideas to become part of active practice. This chapter works to establish some of these factors by examining the elements identified by interview participants as essential or significant to this process.

#### 3.1 Accessible, Accurate, and Appropriate Content

The content of a bioarchaeological knowledge mobilization project is extremely important. It provides the framework for audience interaction, setting the tone for the project and identifying the purpose and necessity of the work. How content is structured will influence – among many other factors – the people who may be drawn to and/or benefit from the project, the possible outcomes of the project, and whether or not it has potential value for the people who may interact with it. With this understanding, it is easy

to see why many participants noted that it was necessary for bioarchaeological knowledge mobilization projects to be tailored to their anticipated audiences.

Based on discussions with participants, I identified three dimensions in which content can be tailored to its intended audience, and which lie at the crux of successful bioarchaeological knowledge mobilization as it was defined in the second chapter: accessibility, accuracy, and appropriateness. For this thesis, the term “accessibility” encompasses the various ways in which participants discussed customizing the content of bioarchaeological knowledge mobilization projects to be understandable to, and impactful for, their intended audiences. “Accuracy” signifies the need to remain true to scientific methodology and research throughout a project, allowing it to be reflected in the content presented. And lastly, “appropriateness” largely references factors related to the respectfulness of a bioarchaeological knowledge mobilization project.

It is essential for the content of bioarchaeological knowledge mobilization projects to be accessible, accurate, and appropriate, as these three dimensions are necessary for creating a project that audiences are willing and able to engage with. If audiences find the content of a bioarchaeological knowledge mobilization project to be inappropriate or inaccessible, the result is the same – the audience will not engage with the project, either by choice or inability. This means that although the information may have been put out into the world by the museum, it will not have been taken up by the museum’s audiences in a way that makes it valuable or impactful. Therefore, knowledge mobilization has failed to occur. While accuracy may not always face the same issues in gaining initial engagement as accessibility or appropriateness, as the accuracy of a knowledge mobilization may not be as readily apparent to an unfamiliar audience, it is no less

important in the bioarchaeological knowledge mobilization process. This was highlighted by the various participants who reiterated its necessity throughout our discussions.

Analysis of these discussions suggested that this need for accuracy is related to the way that bioarchaeology itself is conceived: as a scientific discipline. As a science, bioarchaeology subscribes to scientific principles, which requires conclusions based on empirical data and meticulous examinations of reasoning, as well as transparency around the methodologies and limitations of research (Education Resource Information Center, Department of Education, 2002). Consequently, I believe that many would argue that without accuracy, a project could no longer be considered *bioarchaeological* knowledge mobilization, as they would have departed from the realm of what it means to be bioarchaeological.

Therefore, to create a successful bioarchaeological knowledge mobilization project, appropriateness, accuracy, and accessibility must *all* be achieved. As these dimensions are essential to all the content created for a bioarchaeological knowledge mobilization project, they are entangled with all its other aspects. As a result, they will appear throughout the following discussion of other significant elements of bioarchaeological knowledge mobilization projects, although they may not be identified explicitly as being related to “accessibility,” “accuracy,” or “appropriateness.”

### 3.2 Acknowledging the Significance of Language

Most of the participants I spoke with saw the museum as an institution for public education and recognized that the impact of bioarchaeological research relies on its ability to be shared with and utilized by wider audiences outside of academic circles.

Therefore, they acknowledged that museum professionals must consider how to create

programming that draws public awareness and bridges different levels of knowledge and understanding around a topic, so these projects may generate meaningful experiences for a wide variety of visitors. This is fundamental to the topic of the accessibility of bioarchaeological knowledge mobilization projects.

One aspect that many participants identified as a priority when sharing bioarchaeological knowledge was actively working to utilize language that aligned with the anticipated knowledge level of their intended audiences. As one participant expressed:

If I've got to put this information out there for sixth graders, it's going to be more everyday language and not as technical. You have to gear the presentation... You have to be able to change the language so you're not going to talk above the group... But on the other hand, you can't oversimplify it, so they feel they're being talked down to (RG).

As museums generally serve a wide variety of people in the public sphere, with many offering educational programming for elementary and/or high schools, a number of participants spoke of simplifying the language of their projects to be intelligible to those with little to no background in bioarchaeology. Participant strategies for simplifying language included limiting the amount of complex jargon used and utilizing vocabulary that would be suitable for elementary or middle school (often sixth grade) level comprehension. Another participant articulated this idea well, saying:

I try to use [simpler] language because I know that [this content] goes to people that are not specialized in the issue. But I've seen that sometimes it doesn't happen. We archaeologists, or scientists in general, use '*palabras difíciles*' (difficult words). And sometimes we don't realize that we are not helping. So, I try to explain things like if I was talking to a child or somebody that doesn't know anything about [the subject] (BC).

However, the need to create audience-accessible content did not override the need for accuracy for many of these participants. Therefore, there was discussion of practices that allowed for accessibility and accuracy to exist together. In these situations, jargon is largely limited to the discipline-specific terminology that has been identified as foundational to the subject being discussed, and plain language definitions accompany each term. The benefit of this strategy is to limit the overall complexity of exhibit materials while grounding the visitor's learning in bioarchaeological concepts, allowing them to establish knowledge on the subject that can be built upon throughout the exhibit and after their visit.

Language was also discussed as being important to the appropriateness of a bioarchaeological knowledge mobilization project. A number of participants spoke of needing to be aware of how the language used in a knowledge mobilization project can impact how audiences feel about the subject, how they interact with the project, and how they carry these experiences into their life. In other words, language itself can have implications for the meaning that visitors draw from a bioarchaeological knowledge mobilization project. For this reason, some participants discussed the importance of current and thoughtful labelling in museum exhibits for generating respectful and genuine interactions with human remains. As one participant explained:

Sensitive and intelligent labelling [are essential]. If you just say "Mummy, Egypt," well what are you saying? But if you can say [their name] and [their] dates and where [they] lived, that goes a long way to making these people human (EE).

As the story of another participant highlighted, this consideration of language also needs to go beyond the labelling for specific displays within an exhibit. PA shared a moment in

their career where a staff member had hung a sign in an exhibit cautioning something to the effect of “Warning! There are human remains in this hall.” They expressed feeling that while there can be a benefit to allowing visitors to decide whether to engage with subjects that may be upsetting to them, the use of phrases like, “Warning” or “Caution,” in relation to the presence of human remains can be alarming to visitors and generate negative perceptions of human remains as something to be feared.

Other participants went beyond the influence of language in the present to also reflect on the history of bioarchaeology, where the terminology used facilitated the medical sterilization and objectification of human remains as bodies to be used in the name of science. They acknowledged the need to reckon with this history and work to balance bioarchaeological knowledge mobilization projects’ attempts to introduce scientific terminology with a cultural sensitivity that recognizes that certain terminology may be perceived as a source of violence in bioarchaeology while being harmless in other contexts. For example, a few participants shared experiences where the use of “research” or “study” in reference to human remains was viewed as offensive due to the way that it perpetuates historical bioarchaeological perspectives of human remains as objects of study or research. This objectification has caused harm to many descendant communities. One participant went on to explain that the term “document” (as a verb) has been considered an acceptable substitution for members of descendant communities in their experience, as it is commonly used in reference to the recording of information about people. Avoidance of the term “specimen” was also flagged as essential by many for the same reason as “research” and “study”.

Additionally, some participants spoke about carefully selecting the language used in bioarchaeological knowledge mobilization projects to ensure that they were not perpetuating stereotypes or biases that have dominated societal narratives both in the present and about the past, such as racism and ableism. These participants felt that being transparent about the use of updated terminology, acknowledging the harms of past terminology, and providing historical context to these narratives can be beneficial practices to generating discussions that are more understanding and respectful among visitors. Also identified as important by these participants was asking communities, when possible, for their preferred name when updating exhibits, so as to respect their autonomy and sovereignty.

### 3.3 The Incorporation of Bioarchaeological Concepts

While language is an important facet of knowledge mobilization, bioarchaeology is more than simply its terminology. Bioarchaeological research, as with that of any other discipline, is established through its interaction with theory and methodology. The theories and methodologies that a bioarchaeological project draws on are as essential to the project's conclusions as the data itself, as they provide the lenses through which researchers understand the past (Martin et al., 2013; Muller, 2020). As a result, the accuracy of a bioarchaeological knowledge mobilization project is essential to its accessibility. This was recognized by several participants, who were aware that these aspects of bioarchaeology are often unfamiliar to a more general audience and expressed that this lack of knowledge was a barrier to understanding bioarchaeology as a whole. Therefore, many participants felt it necessary for audiences of bioarchaeological knowledge mobilization projects to not only be aware of the results of bioarchaeological

research, but also to be introduced to the concepts, theories, and methodologies utilized to arrive at the knowledge which was being discussed. When discussing bioarchaeological knowledge mobilization projects that have occurred in their museum, one participant explained:

The work of the museum was not only to show the results. The goal was also to include the process of the analysis... These projects allowed the archaeologists of the museum to show that knowledge is something that you build little by little and it is not something that is built in an isolated way – you need to work in a team. Your work [is what] brings the results. And [those] results are what you transmit... [The museum] wants to expose how the archaeologists work, how the archaeologists do the research, and [how] they build and transmit that knowledge (FR).

However, unlike the bioarchaeologist or museum professional who likely has had a number of years, if not decade(s), becoming familiar with the discipline, audiences of bioarchaeological knowledge mobilization projects are often receiving a crash course in the subject. As a result, a number of participants addressed the need for professionals to condense and simplify the several years of learning and experience that goes into bioarchaeological research into more digestible pieces of information for a general audience. As another participant shared:

There's a responsibility towards getting it right whenever you communicate with someone who hasn't been studying this for five to ten years. I believe that a lot of the research that we do, anybody could understand if they had time to understand it. But we're the experts coming in, who have been studying this for several years or more – decades if you're near the end of your career. So, I have been thinking about that a lot in terms of science communication and why is it so difficult? And I don't think it's because people can't understand it. I think it's because we have to try to condense ten to twenty years of knowledge into something that is bite sized in comparison. And I think that trying to get to that, it is easier and often better to connect to the whys, and [that] this is what people were like and this is how it relates to you. But then you have to be careful, because you [also] want to represent your research accurately... So I have to start off with definitions,... what's my research? I always have to start from the ground up. And, you know, there

can be difficult because I just want to get to the cool stuff, right? I just want to get to the: this is what I found. This is the thing that this is all about. [But] you have to guide people there. And you have to do it in such a way that they don't have to sit down and spend six months reading your research to understand (FB).

The existence of a knowledge gap between research professionals and the public is not unique to the discipline of bioarchaeology. Generally, the public lacks specialist knowledge about most fields of research and how they operate. However, while this is not a unique problem faced by bioarchaeology, bioarchaeological research and knowledge mobilization projects were recognized by a number of participants as having higher stakes than other kinds of projects, requiring special attention to be paid in order to ensure respectful treatment and representation of human remains as once-living people. As a result, addressing the underlying research theory and methodology to some extent was deemed as an important part of the bioarchaeological knowledge mobilization process by several participants. The quotation from FB highlights something that many participants expressed, that it is not necessary for non-specialist audiences to know every detail of the bioarchaeological research that has been conducted, but that there is a benefit to guiding people through the general processes, decisions, and realities of the discipline. In providing a basic level of insight, professionals allow audiences to better understand and appreciate the conclusions that bioarchaeologists have reached, the significance of this research, and the ethical guidelines that are integral to working with human remains. This belief was articulated by another participant after considering their own interactions with people unfamiliar with bioarchaeology, stating:

I think being very transparent in how we're coming to conclusions is really important. Because I've [interacted with people] not educated about bioarchaeology at all, and I find they always have a lot of questions like, "Okay, but how do you know that?" and I think, providing more

[information] about – not like, "Here's how you sex an individual" – but working in how we've come to conclusions more [ can help]. 'Cause then I feel like they would take more away from what they've read and what they've seen at bioarchaeology exhibits or exhibits incorporating bioarchaeological knowledge (BA).

As established in Chapter 2, many participants found it helpful to introduce bioarchaeology to audiences through the lives of individuals from the past. Observations about which details were emphasized by participants as central to discussing individual narratives suggest that telling stories about individuals from past societies can be useful as it allows professionals to introduce foundational concepts such as sex and age estimation, pathological conditions, and mortuary artifacts and practices. From these factors, professionals are then able to stimulate discussions around cultural beliefs and practices related to age, gender, social status, etc. This model of teaching reflects the way that bioarchaeology itself operates – looking at the stories of individual lives through the material record (for example, osteobiographies – the stories about individuals' lives that can be read from their skeletons (Saul & Saul, 1989) which, when looked at in reference to each other, can tell us more about the societies and cultures to which these individuals belonged. This model was also seen by participants as having the benefit of providing a tangible way for the modern individual to connect with their own body and see themselves reflected in the past. Participants noted that when speaking on the individual level about people from the past, there is an opportunity for audiences to learn something about their own anatomy by understanding how human remains and their mortuary treatment can reflect an individual's life.

One participant shared the benefit of this method of engagement when working with children:

I used to develop a workshop for children. And one of the workshops was about human remains. And these children were like seven, eight [years old]. And [we'd] say, "OK, we are going to see how archaeologists establish age. For example, [we] can see your teeth and [we] can see that you [are] 10 years [old]... Now, we're going to see the age of this individual who is on the table... The children were fascinated [remarking], "Oh, this is my body" and "[if] I break my leg, well the bone sits like that on my body." So, they came through, and they [got] close to the human remains as a way to explore their own body (DB).

However, this understanding is not only significant to children, but also adults. Another participant shared the interactions they witnessed between elderly people, who also saw themselves reflected in the bioarchaeological record:

[They said] "You know, I never thought of that. Like, this is what osteoarthritis does to your bones." And then I observe[d] [these] little, old people walking through and going, "Oh, that's when my hands feel the way they do. Look at what the bones look like" (PA).

### 3.4 The Inclusion of Interactive Elements

While the inclusion of bioarchaeological concepts can generally help audiences connect in more impactful ways with bioarchaeological knowledge mobilization projects, there are some elements of bioarchaeological research that have traditionally held limited possibilities for public engagement in a museum setting. These include the use of imaging technologies that allow researchers to see beyond what is visible to the naked eye, and interactions with archaeological materials that involve sense perceptions other than sight. However, participant discussions highlighted that the increased inclusion of interactive elements (especially technology) within bioarchaeological knowledge mobilization projects can aid in bridging some of these gaps and allow visitors to better visualize and experience bioarchaeological knowledge and practices.

Technological developments were highlighted by various participants as being beneficial to deepening visitor engagement, providing new modalities for visitor interaction. As many aspects of a bioarchaeological research project may focus on the internal, particularly when working with individuals who have been mummified, the focus of the resulting knowledge is often initially invisible to audiences of bioarchaeological knowledge mobilization projects. As a result, technologies that allow audiences to visualize what it is that bioarchaeologists are looking at and what they can learn from what they see can be enlightening to many audiences. For this reason, the increased inclusion of interactive screens in bioarchaeological exhibits was a topic of discussion for a number of participants. These screens allow visitors to view 3D reconstructions of human remains with various anatomical and funerary features flagged. Descriptions that accompany these flags explain how these features help bioarchaeologists learn a person's age and sex, as well as give insight into evidence of potential pathological conditions or mortuary practices. By providing visitors with a self-controlled activity, these screens offer visitors an opportunity for co-creation of knowledge through professionally guided, experiential learning, which may foster a deeper understanding of complex and otherwise intangible concepts. Additionally, some participants felt that these screens may allow some people to work through discomfort that they may have around human remains and recognize their humanity. However, two participants made a point to acknowledge the dangers that these technologies may hold in terms of objectifying human remains, such as those cited by Wagner (2017) in the introduction of this thesis. As a result, these participants emphasized that it is still important to accompany these self-guided exercises with reminders that these images are representations of people, and as such, need to be

treated with the respect that we expect for human remains themselves. Exploring their thoughts on the benefits and potential consequences of the incorporation of technology in museum exhibits, one participant expressed:

[The] general public, they don't have experience in digital archaeology [or] bioarchaeology. They see [the human remains and the digital reconstruction] as two completely different entities. But they are really strongly tied together. 'Cause it is still a person, but it is a digital reconstruction of that person. It isn't going to be exactly the same, but it's not completely different. And it's still representing that person... [Interactive screens] open doors to being a lot more interactive and engaging and showing different parts of [bioarchaeology] that you wouldn't necessarily be able to show without it. But I think it's important to communicate that is still [representing] a person. Although it is a reconstruction, you are viewing a person... I think that gets lost, and I think it is still really important to be able to communicate that fully (BA).

While technology can provide opportunities for visitors to explore bioarchaeology more deeply with these interactive screens, it also provides museums the opportunity to expand their audiences and include individuals who may have been excluded by traditional museum practices. Museum preservation standards and expectations for the appropriate treatment of human remains in these spaces mean that there is not usually an opportunity to interact with human remains and their associated funerary artifacts in any manner other than sight. However, two participants shared the ways that they have experienced the use of new technologies to create reconstructions that may permit more tactile interaction. One participant spoke of the use of 3D modelling technologies being used to create 3D printings of archaeological artifacts, which then allowed the museum to offer the opportunity for visually impaired audiences to come and experience the content of the exhibit in an accessible way. Another participant spoke of the use of recycled materials to create a replica of a Peruvian *fardo* (a funerary bundle of textiles which usually encompass an individual and associated grave goods). This replica allowed the museum

to invite individuals with disabilities from the local area to participate in their educational programming in a way that was accessible and important to them. As the fardo was a replica, made from non-bioarchaeological materials, audiences of these educational sessions were able to participate in tactile interactions, including hugging the fardo. Additionally, the incorporation of 3D technology and a presentation with the replica, allowed for an exploration of questions like: Are there mummies in the museum? Why are technologies, such as x-rays and CT scans, used? And why are the bundles not opened? These experiences provided the audience with the opportunity to form a more personal connection with not only the replica fardo, but also the history and funerary practices of the region.<sup>5</sup> An example of this type of engagement documented in a poster posted to the Museo Pachacamac website as part of the May 2020 ICOM International Day of Museums (Watson et al., 2020).

### 3.5 The Creation of Dialogue with Visitors

The creation of dialogue with visitors was identified by several participants as important to the museum experience, whether occurring by way of docents, educational programming mediated by professionals, or behind-the-scenes guided tours. As one participant stated: “To establish a bridge of communication is very important” (DB). Frequent dialogue between museum professionals and museum audiences can make

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<sup>5</sup> While this section discusses the significance that the incorporation of imaging technologies can hold for museum engagement with bioarchaeological knowledge, it is important to note that imaging and 3D modelling of human remains and funerary artifacts are not always appropriate. There are many communities whose funerary traditions are sacred and are intended to remain private. Additionally, imaging and reconstruction come with their own ethical considerations regarding ideas of ownership and data sovereignty, which are particularly significant for the field of bioarchaeology (for a discussion of some of these considerations, refer to Gupta et al., 2022; Nicholas et al., 2008; Schug et al., 2021). Therefore, discussions with and the consent of descendant communities are extremely important before taking on these projects.

exhibits seem less static while also providing the opportunity for audience feedback. This in turn creates the potential for a more reflexive museum practice, which can help in navigating the complex and ever-changing ethical considerations of bioarchaeology and creating deeper visitor connection to bioarchaeological knowledge.

Participants recognized that the presence of a representative of the museum in an exhibit can aid in creating an open space for questions and further conversation. By having a knowledgeable person available to discuss the subjects of a knowledge mobilization project further, audiences may explore questions about bioarchaeology that are of particular interest to them, generating further curiosity about the subject. They may also, through the exploration of one topic, be introduced to new information or areas of interest that they were previously unaware of. Even when the representative may not be able to answer an individual's specific questions, they can often point them in the direction of a person who can, whether it is someone else in the museum or someone they can contact.

As one participant stated:

All of our teachers and docents at the [museum] were trained to say when they didn't know. "I don't know, but I can find out for you." Or "I don't know, but go on our website." Or "I don't know, but here's a card. Write to these people, call these people." And I think that real connection is very important for science, because otherwise, science may as well be one more fantasy (EE).

Guided tours and information sessions with multidisciplinary professionals can provide more than just the opportunity to find new interests. They can also help to meet the needs and interests outside of a museum's usual anticipated audience. A few different participants shared experiences interacting with audiences who had more background

knowledge about the topic at hand. In these cases, they shared how offering guided tours by knowledgeable professionals can allow for focus on specific areas of bioarchaeology and generate engagement with a knowledge mobilization project's material in a different light, increasing the level of detail provided and creating the opportunity for a more complex discussion. One participant, while exploring the benefits of offering professionally guided tours, shared:

When there was an exhibit that was about human skeletal remains, then we would have special tours that would be like, this is a tour centered around this exhibit that's for college age, or high school age, or whatever. And any time it went into college age, then the curator got involved. And so, depending on what the school wanted – or the class, you know, it was usually like an anatomy class would come or a nursing class or something – I would give a behind the scenes tour... or a tour of the exhibit itself. So it kind of depends... A couple times, it got me an intern... Like anatomy students who were in medical school, and weren't thinking about skeletons, but then all of a sudden, were like, "Oh, my gosh, I can learn something from the skeleton..." A lot of times I would get an email from just a random college professor that I didn't know. And then I gave a tour and then all of a sudden that person came to do research or something and they became a research associate or something like that... Having the behind the scenes things I think definitely gave me colleagues that I wouldn't have had before that (PA).

Some participants also felt that by providing professional mediation of bioarchaeological knowledge mobilization projects, museums may provide more transparency about bioarchaeological research and the exhibit itself. In interacting with audiences, museum professionals are able to elaborate more upon bioarchaeological research, sharing realistic ideas about what may or may not be known about an individual, society, or culture with visitors, and also explaining the limitations of bioarchaeological research. In a similar vein, these professionals are also able to share updates about current research that may be

in progress but have yet to be incorporated into exhibit materials. As one participant explained:

I think we always need the facts and as much of the evidence [as we know]. I think scientists are always working, so a lot of sentences start with, “Well, right now we think that...” “You know, the latest evidence we have suggests that x.” “As far as we know, but...” And not to be “Oh, these ancient people A,B,C,D,” but that “We think...” “We don't really know about these guys, [but] we think they did this.” I think we have to be very respectful in that way, to have both what we know... and [what] we don't know... I think that it's important to know those kinds of things and to be able to explain [them] (EE).

Additionally, some participants deemed it important for professionals to provide justification for bioarchaeological research and exhibits, answering questions like “Where did these [remains] come from? Why do we have these [remains]? Why do we have these images?” (FB). Furthermore, museum professionals could also help provide audiences with more detail about whose stories the museum has chosen to share and why, making the interpretative aspect of bioarchaeological knowledge mobilization (as well as museum) projects more apparent.

In providing transparency, museum professionals make bioarchaeology and the museum space more public. This may aid in dissolving potential public distrust that arises from ideas of elitist institutions who control and hide information. Further, by acknowledging and articulating the potentials and limitations of bioarchaeological research, professionals create space for bioarchaeological knowledge mobilization projects to address instances of over-promising and bad faith interpretations that contribute to the perpetuation of pseudoscience. Additionally, demystifying professional processes and decisions, and being available to guide audiences through bioarchaeological knowledge, participants recognized that they were able to help in demystifying human remains to visitors. In

facilitating visitor interactions, some participants realized that they were able to adjust the pace of their projects, gradually increasing people's exposure to human remains to combat feelings of fear or panic that some may experience. For one participant, the presence of a museum professional who can mediate audience interactions with human remains was absolutely essential for bioarchaeological knowledge mobilization projects and, at their museum, no remains are accessible to the public without it. As they stated: "If we are going to show human remains, there has to be someone who can absorb their doubts and can channel the information they have and explain it" (FR).

Some participants explored the ability of museum professionals to facilitate connections between visitors and the dead further. For many, providing a fuller context – articulating the who, what, why, when, where, and how – of everything helps in moving audiences away from ideas of human remains as morbid objects in a museum's collection and towards connecting with them as people. For one participant, this was reflected in the way they described their job as acting the part of a friend, introducing visitors to the dead in a way that recognizes and honours them according to their culture. As they stated:

The Egyptians said to speak the name of the dead is to make them live again. So, if at all possible, I want to know the name of that person, so that I can say the name for them. If we can't know the name, I think to know as much about the person and their life as possible is as close as I can get to saying their name for them. So, I am acting the part of a friend by introducing them to other people in a respectful and knowledgeable way (EE).

This echoes ideas from the literature, such as those expressed by Anderson (2018), who considers the principles of ethical display when designing a new exhibit for the Egyptian mummies at the University of Tartu Art Museum in Estonia. According to Anderson, museums need to prepare visitors for the exhibits that they will see and give them the

background that they need to appreciate these remains as people and show them respect. In her words, museums need to “facilitate encounters with [the dead]” (Anderson, 2018, p.97). Looking at Anderson’s work, it is possible to see the way that all elements of a bioarchaeological knowledge mobilization project contribute to this dialogue with visitors. In recognizing that “displaying is not just showing” (Anderson, 2018, p. 98), Anderson explores how the design of an exhibit has an impact on visitors and helps to shape the way in which they react to and interact with the display of human remains. Anderson’s team, by incorporating their intentions into their design, developed a room that reflected the original environment in which the mummies would have been placed in Ancient Egypt. The space was designed to help visitors see the mummies as they would have existed in the Ancient Egyptian worldview. To accomplish this, the museum involved a diverse team of people in order to create an informal and formal educational experience appealing to multiple different target groups. In creating this experience, they worked to stimulate the curiosity of visitors and encourage discussion between visitors and museum staff. As Anderson discusses (and as we established in Chapter 2), curators cannot predict the exact way in which individuals will engage with an exhibit, as individuals will engage with the exhibit in different ways due to their own personal background of knowledge and beliefs. However, she highlights that encouraging discussion and interaction with the exhibit and museum staff is likely to result in more knowledge acquisition, as it allows visitors to form their own interpretations of the exhibit based on the science and the curators’ intentions.

It is also important to recognize that museums achieve more than just their educational goals in creating dialogue with visitors. By demonstrating care and respect for both past

peoples and the audiences of bioarchaeological knowledge mobilization projects, museum professionals also facilitate the creation of sociocultural value. These actions and attitudes break down traditional delineations between professionals and non-professionals in bioarchaeological and museological spaces, inviting wider participation and investment in bioarchaeology and cultural heritage. As a result, these actions help to foster a space for community, expanding the museum from a place of education to a place of community learning and development.

### 3.6 Placing a Focus on Cultural Sensitivity and Collaboration with Descendant Communities

While the topic of this section is the last element of effective bioarchaeological knowledge mobilization to be discussed in this chapter, its position is in no way related to its level of importance. The incorporation of cultural sensitivity and collaboration with descendant communities was identified as an imperative part of bioarchaeological knowledge mobilization projects by most participants. Cultural sensitivity and collaboration with descendant communities is increasingly being viewed as a prominent and necessary part of the bioarchaeological knowledge mobilization process. As the International Council of Museums (ICOM) Code of Ethics for Natural History Museums states:

Human remains should be stored and displayed with dignity, in appropriate environmental conditions [and] should only be displayed or used scientifically in circumstances where the highest professional standards can be implemented. Where extant representatives of the cultural groups exist, any display, representation, research and/or deaccession must be done in full consultation with the groups involved (Ethics Working Group of the International Council of Museums International Committee for Museums and Collections of Natural History, 2013).

Due to the importance of sociopolitical and cultural values in shaping attitudes towards the dead (as was discussed in Chapter 1.2.2), understanding the cultural context and how to be culturally sensitive are essential parts of establishing a knowledge mobilization project that is appropriate or dignified. Of particular importance to bioarchaeological knowledge mobilization projects are ideas of what is appropriate in regard to the display of human remains. While not every bioarchaeological knowledge mobilization project involves the direct display of human remains, the reality is that human remains are present within many museum exhibits that discuss bioarchaeological knowledge<sup>6</sup>. Even without the direct display of the remains themselves, bioarchaeological knowledge mobilization projects often rely on the use of images as a way to illustrate for audiences what it is that bioarchaeologists see when they look at human remains and what can be understood from what is or is not seen<sup>7</sup>. This idea of educational significance was reflected in discussions I had with a number of participants, who expressed the belief that the presence of human remains in some form (physical or digital) can serve as an invaluable part of the bioarchaeological knowledge mobilization

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<sup>6</sup> During the writing of this thesis, some prominent museums changed their policies regarding the display of human remains, removing some or all of them from display. While some removed all visible remains from display, others focused on remains who were deemed to have come to the museum “unethically” (Crimmins, 2023; Damp, 2023; Small, 2023; Yu, 2023). Some museums have gone even further in removing all human remains from display. The current trend suggests that this may become a wider standard across colonial institutions. However, as these projects are currently in the beginning stages, it is impossible to know the intended resolution and long-term impacts of these decisions. Future study of these policies and their impacts could prove invaluable in further understanding how or how not to navigate colonial history and violence and its effects on participants in bioarchaeological knowledge mobilization projects.

<sup>7</sup> While not explicitly the display of the remains themselves, imaging – from a simple 2D photograph to a 3D reconstruction created from CT scans – is still meant to reveal the individual in some way and so is a form of display. As a result, the use of images in bioarchaeological knowledge mobilization projects does not automatically negate all the ethical issues that the direct display of the body may hold.

process. However, it is important to note that all participants did not share the same perspective about what appropriate display involves. Beliefs about the level and extent of display which could be considered respectful varied, ranging from the unrestricted display of remains, to professionally controlled and mediated presentation of certain aspects of the body, to the use of only images.

Despite feeling that the display of human remains was educationally impactful, no participant unequivocally demanded that they be present in an exhibit. While some participants were hesitant about how bioarchaeological knowledge mobilization projects might function without the presence of human remains, and a few expressing sadness towards the idea of widespread removal of human remains from bioarchaeological knowledge mobilization projects, all participants shared a level of understanding that cultural context and sensitivity play an essential role in building relationships with their audience that facilitate meaningful engagement with bioarchaeological research. One participant, reflecting on the way that the current changes in bioarchaeology and the museum space intersect with their own views on the significant role that human remains play in bioarchaeology, shared:

I think, for the future to make everybody happy, or at least as happy as possible the bioanthropologist is going to have to get together with cultural groups, religious groups, or whatever, and prove [their] case that these human remains are important to maintain and how best to exhibit them ethically without offending anyone. I think that's important. But there's got to be a solution. And I think it's going to have to be a team effort... It's no longer just looking at the bones for your folks. It's got to be more inclusive. That's a challenge.... For so long, we've just presented our findings to a group of similar academics. And then everyone goes home, it gets published, no one reads it outside that community. And it's really important to get that information out there (RG).

The recent increased focus on collaborations with descendant communities reflects a growth in societal awareness about the prevalence and impact of institutional marginalization. When considering bioarchaeological knowledge mobilization, it is important to remember that museums have traditionally been considered authorities on culture. As such, the ways that they present subjects “through practices of collecting, cataloguing, display, interpretation, and education” (Riggs, 2014, p. 1132) have generally held a large influence on public perceptions of these subjects. Therefore, it is important to recognize that many museums and their collections exist as a result of colonialism and were meant to communicate European superiority<sup>8</sup>; their messages and ideologies have been inherently intertwined with colonial influence, policy, and practice that has aided in perpetuating long-standing inequalities and abuses of power against equity-deserving communities. The result of this is that museums have not been spaces for everyone. They have historically

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<sup>8</sup> A quotation from Richard Owen – the superintendent of the British Museum’s Natural History departments between 1856 and 1884, and one of the main people responsible for the creation of the British Museum (Natural History), which later became the Natural History Museum (Encyclopaedia Britannica, 2023) – in his Presidential Address to the British Association for the Advancement of Science in 1858 reveals this intertwining of the museum’s purpose with the ideas of European superiority and the advancement of colonialism:

“Every civilized state in Europe possesses [a Natural History] Museum. That of England has been progressively developed to the extent which the restrictive circumstances under which it originated have allowed. The public is now fully aware, by the reports that have been published by Parliament, by representations to Government, and by articles in Reviews and other Periodicals, of the present condition of the National Museum of Natural History and of its most pressing requirements.

Of them the most pressing, and the one **essential to rendering the collections worthy of this great empire**, is 'space'. Our colonies include parts of the earth where the forms of plants and animals are the most strange. **No empire in the world had ever so wide a range for the collection of the various forms of animal life as Great Britain.** Never was there so much energy and intelligence displayed in the capture and transmission of exotic animals by the enterprising traveller in unknown lands and by the hardy settler in remote colonies, as by those who start from their native shores of Britain. **Foreign Naturalists consequently visit England anticipating to find in her capital and in her National Museum the richest and most varied materials for their comparisons and deductions**” (Owen, 1858, p. xciv, emphasis by author).

represented the opinions and interests of white people, especially males (Loyer, 2021), and there are many communities who have been harmed by museum practices and whose voices and wishes about their cultures and ancestors have been silenced (Atalay, 2006; Kenny, 2013; Lans, 2020; Riding In, 1996; Redman, 2016; Roque, 2018). For this reason, an awareness of the discipline's history and its impacts is essential for a bioarchaeological knowledge mobilization project to be culturally sensitive.

Speaking with participants who have been working in or with museums in the changing tides of bioarchaeology and museology in the last few decades provided insight into the impact that the creation of the Native American Graves Protection and Repatriation Act (NAGPRA) in 1990 had (see also American Alliance of Museums, 2010; Nash & Colwell, 2020; Trope & Echo-Hawk, 2000). It acted as a catalyst for change within both disciplines and motivated many professionals to be more cognizant of cultural sensitivity's place in bioarchaeology and museums. In opening the possibility for Indigenous communities to exercise sovereignty over their ancestors and cultural artifacts in museums, NAGPRA required dialogue between museum professionals and Indigenous communities. This challenged previous ideas of cultural authority and generated more professional attention on, and scrutiny of, the issues that prompted NAGPRA's creation. While there are still some professionals who oppose NAGPRA, discussions with participants suggested that, overall, these moments created opportunities in the museum space for a more critical examination of the museum's role and purpose, as well as a greater awareness for the significance of cultural sensitivity. Reflecting on the way that

the fields of bioarchaeology and museology have changed since NAGPRA, one participant shared:

During the time I was [museum] director, this NAGPRA regulation, or legislation, came in, and we had no idea that this was going to be happening. And then it was a requirement for us to start working with local tribal groups and trying to work out repatriation of things from our museum. And this seemed inappropriate to me at time. I was director, but I thought, let's look in, let's follow this... And then I had a fellow working for me a graduate student, who had already made some contact with Native American groups. He was an archaeology student. And I just told him, you take care of this, and I'll back you on it, but let's see if we can find a way to cooperate. Which we did. And this has worked out beautifully, and it continues to work out beautifully for [that] museum, because they are very much involved with Native American groups. But when that came up, I thought... I got into the literature on it and stated reading about the fact that only Native American graves were subject to archaeological excavation and looting and that. Or some Afro American graves, cemeteries. You could do that for Afro American or Native American [graves], but that was it... It begins to change your perception (DM).

As the changes provoked by NAGPRA have shown, if museums wish to be the places of community and education that they have defined themselves to be, then they must invite descendant community involvement and allow their voices to be heard regarding what is and is not appropriate for bioarchaeological knowledge mobilization projects. Many of the participants I spoke with understood this was an important reality that needed to be recognized when doing their work, but also acknowledged that it can at times be difficult to achieve due to the distrust that these histories have created. However, there were a few participants who expressed to me their hopes that the current generation of students and young professionals, most of whom have had exposure to this issue their entire careers, will bring new insights and approaches to the field that will eventually allow for the positive resolution of these issues.

In understanding that a resolution of these issues (and reconciliation) has yet to be achieved, it is important to acknowledge other perspectives. While NAGPRA has had a large and generally beneficial impact on the fields of bioarchaeology and museology, it is essential to understand that it does not provide all-encompassing standards for achieving “appropriateness.” As a result, we must also recognize its limitations. First, NAGPRA is based on the United States legal system, requiring Indigenous communities to comply with Western ideas of Indigenous identity and legitimize their ancestral ties through American legal claims processes (Riding In, 1996) This requirement excludes many Indigenous communities who do not fit into these restrictive definitions and it has also caused further harm to communities that are forced to conform to additional colonial policy in their attempts to exercise their sovereignty. Additionally, it obviously does not address the many non-Indigenous communities who have been marginalized and harmed by colonialism, who also deserve to be recognized within the museum space. For example, groups within the United States have called for the creation of an African American Graves Protection and Repatriation Act to address how systems of oppression in the United States have resulted in the large number of Black ancestral remains in museums and help Black communities regain sovereignty over these ancestors (Dunnavant et al., 2021). Therefore, it is important to recognize that collaboration with descendant communities should not only be deemed appropriate when it conforms to legislative requirements. Furthermore, we must cognizant of how the needs of one community may not be applicable to another, and trying to apply a broad approach for satisfying all or most community opinions of what is appropriate could lead to the silencing of other communities’ voices (see Overholtzer and Argueta, 2018 for an

example of how widely applied regulations based on the wishes of some communities can censor others, undermining their sovereignty over their culture).

Bioarchaeological knowledge mobilization projects must also recognize that community ideas of what is respectful are not static either. Ikram's (2018) examination of attitudes in Egypt towards the display of Egypt's Royal Mummies from the 19<sup>th</sup> Century onwards provides an in-depth example of the ways that ideas of what is considered appropriate in regard to the dead may change over time "depending on the interest group, as well as due to the influences of religion, emotion, ethics, politics, and economics" (Ikram. 2018, p. 879). Additionally, as discussed in the introductory chapter, communities are not homogenous entities that hold a single, unified opinion, and professionals must resist thinking of them as such, recognizing them instead as individuals who are united by a shared identity while each having their own thoughts and experiences. Conversations I had with two participants highlighted these realities. Both participants had formative backgrounds in Peruvian culture, but different attitudes towards display of the dead in Peru. While one felt that the dead should not be displayed, the other was an advocate for it, and both of their reasonings for their perspectives were based in their backgrounds and experiences of identity in Peru.

The participant who rejected the display of the dead was raised in a Peruvian Catholic environment where their ties to their Indigenous ancestors were rejected. As a result, their perspective on respectful treatment of the dead was based in Catholic ideologies and practices around death. In their words, the dead should not be displayed because:

I always think that I don't want to end up being displayed, so why do the same for others? And I think why would you do it for Indigenous people and

not for everyone? So that's the way I feel. But in Peru, you have to be really careful because we are really, really divided. There's the people that say that I'm not Indigenous at all. And that's fake. That's fake because almost everyone in Peru is part Indigenous. But there's a part of the society that denies that and there are the other people that are really, really close to that Indigenous part. So, there's two ways of seeing it. I was raised in the part of the society that denies that we are Indigenous. I say that that's not true; I am [of mixed ancestry]. But culturally, I was raised to think that they're not my ancestors. They, the European part of the Peruvians, are supposedly my ancestors... I was raised with the more Catholic way of thinking, so I want everybody to be treated with the same respect as Catholics do (CF).

On the other hand, the individual who was for the display of pre-Hispanic bundles drew their perspective from the traditional practices of the cultures to which the person would have belonged. As the participant explained:

The main idea, in the types of collections that I've studied is to transmit information about that culture. For example, pre-Hispanic Peruvian cultures display[ed] human remains because they were ancestors and they use it to wrap them in beautiful textiles and change textiles from time to time... and that was a very important part of [the] spirituality of those societies. So, if you want to teach the people how those societies were, you need to show they've got that kind of thing. And you can show a picture or a drawing or only the textiles, but if you don't show the human remains, you lost something that was very important... And so, I think that it is important to show human remains in the present, but only if you are and transmitting something important for the people (BC).

Navigating the reality that there will always be multiple, changing perspectives about what is the appropriate treatment of human remains can make bioarchaeological knowledge mobilization projects more challenging, but not impossible. However, it highlights the significance of inviting descendant communities to participate in and inform these projects throughout their development and lifespan. One such type of participation may be the use of 'collaborative curation,' which has been discussed by Exell (2015). In this practice, various collaborators from academic, local, and/or descendant communities are invited to participate in each step of the curation process.

The result is a project that can reflect multiple voices/narratives, helping to correct discordance between academic and non-academic perspectives of a subject and creating content that better aligns with a community's identity and wishes (Exell, 2015).

The necessity of collaboration to the future of bioarchaeological research was recognized by a number of participants. These individuals discussed the need for increased diversity within the discipline and emphasized the importance of building capacity for self-governed research within descendant communities. These calls for change in the discipline echo those within the literature from bioarchaeologists who are members of equity-deserving communities. One such call comes from Kisha Supernant, a Métis bioarchaeologist, who, in speaking about decolonizing bioarchaeology, demands, "No research without consent... No research without invitation" (Supernant, 2020, p. 273, 274). Additionally, the research of Aja Lans, a Black bioarchaeologist, highlights the need for an intersectional approach. Drawing on the work of Katherine McKittrick (2010), she states:

I put the remains of Black women who were dissected in Progressive Era New York City into conversation with Black feminist theorists and artists. I argue that to "flesh in" the lives of these long anonymized and disarticulated women, it is essential to perform interdisciplinary and decolonizing work that is inspired by Black women. The field of biological anthropology will benefit from moving past privileging "scientific" knowledge and considering what the arts might contribute to our representations of the bodies we study (Lans 2020).

The work of these bioarchaeologists and others emphasizes the importance of prioritizing and integrating collaboration with descendant communities as early as possible in a project (ideally from the project's conception). By beginning from a place of collaboration, these projects have the potential to not only better reflect the peoples,

cultures, and histories who/that they are mobilizing knowledge about, but they can also more effectively meet the needs of these communities and help to prevent bioarchaeology and museums from causing additional harm.

## Chapter 4

### 4 Theory, Practice, Praxis

This chapter focuses on public-facing bioarchaeological knowledge mobilization outputs from various museums in order to better elucidate the realities faced by these projects when they are put into practice. Analyzing museum exhibit websites and my experiences in Guanajuato, Mexico through the lens of effective bioarchaeological knowledge mobilization established by my participants, I aim to identify areas of misalignment between professional theory and practice and explore how implementation of these features can bring the field closer to achieving praxis as it is defined by Kreps (2020) and Freire (1998).

#### 4.1 Defining Praxis

Kreps (2020) examines the merging of academic and applied anthropologies currently happening in public museums, and the ways that museums work to bring anthropological theory and practice to wider audiences. As she states, “I view our present age of engagement also as an age of convergence in which the real and perceived boundaries among academic, applied, and professional work have been collapsing around the common cause of engagement” (Kreps, 2020, 9). Kreps draws on the ideas of Mason (2006) and Marstine (2011) to highlight how museum anthropology – which, for Kreps, may refer to both anthropology within the museum and anthropology of the museum – must bring together the knowledge and experience acquired from different anthropological contexts in order for museums to have a firm understanding of their values within the “dynamic ethics discourse” (Kreps, 2020, 22) and be able to

communicate the value that they hold for the public. In bringing together these diverse forms of anthropological theory and practice, Kreps argues that museum anthropology is able to apply the concept of praxis – where theory and practice are blended to form two facets of knowledge, supporting and embodying one another, so as to become “theory-as-practice and [practice-as-theory]” (Kreps, 2020, 8) – thereby negating the perceived dichotomy between research and application as two distinct forms of knowledge.

The concept of praxis as discussed by Kreps (2020) is influenced by the work of Freire, who defines praxis as “reflection and action upon the world in order to transform it” (1998, p. 33). Freire’s theory of praxis draws from his philosophical exploration of teaching and learning as they relate to the ontological nature of humanity as unfinished beings who are continuously shaping and also being shaped by a world in which they exist with others. From this understanding of what it means to be human, Freire (1998) explores what he sees as a reciprocal and reflexive relationship between teaching and learning, in which both teacher and learner must be open to the potential for change and respectful of the experience and knowledge which the other brings to their interaction. In other words, Freire (1998) posits that when true instances of teaching and learning occur, the interaction between teacher and learner should always have a transformative effect on the teacher, learner, and the greater world. Applying this attitude to the museum world, Kreps (2020) argues that the reflexive process of praxis allows for strict, standardized ideas of “best practice” to be critiqued and permits the acceptance and promotion of a dynamic culture of change, informed by the interactions of museums with the social milieu to which they belong (Kreps, 2020).

## 4.2 Exploring Praxis within the Bioarchaeological Knowledge Mobilization Space

In the work of both Freire (1998) and Kreps (2020), the necessity of continuously reflecting on our positionality as both teacher and learner, examining our openness to new information and change, and evaluating how what we have learned can help us grow is made apparent. Drawing on these ideas, this section aims to follow in the spirit of praxis by analyzing examples of museum practice in the context of the museum professionals' perspectives presented in this thesis. The intended result of this exercise is to elucidate and reflect upon the ways that theory and practice coincide, as well as the areas where a discordance between lines of thought and action appears to persist.

To achieve this goal, I needed a way to examine a variety of museum practices across different periods of time as well as geographic location; I decided to examine websites designed for bioarchaeological museum exhibits. Specific details about the websites chosen and how they were analyzed can be found in Chapter 1, Section 1.5 of this thesis.

Exhibit websites function as public-facing outputs of a museum's bioarchaeological knowledge mobilization projects and, as promotional materials, are often one of the first experiences that an individual has with the associated exhibit. As an initial source of interaction with a museum's bioarchaeological knowledge mobilization project, exhibit websites serve a foundational role, laying the framework for visitors' perceptions of the exhibit's content, mission, and expectations. Exploring the way that the promotion of an exhibit influences visitor expectations for an exhibit's content, one participant explained:

When you promote the exhibition, I think it depends on the way that you explain to the public what they [are] going to see... Because here we don't

have exhibitions of human remains. We have [had exhibitions that include] human bodies, but also many other things. And the underlying promotion of the exhibition was not human remains, but all the culture. So, people didn't go to see specifically those remains... I think that our role should be to integrate [content about human remains] into the whole culture (BC).

Examining museum exhibit websites, I often saw an attempt to foster connection between the past and present, allowing people to identify with the dead as people by articulating exhibits through the stories of individuals and their lived experiences. Many exhibits, such as the British Museum's 'Exploring Ancient Lives' (British Museum, n.d.; Montréal Museum of Fine Arts, 2020), focused on a small number of people, exploring historical and sociocultural context and past societies as they appear through the bioarchaeological record. While some websites provided more detail of this approach on the website itself (e.g. Moesgaard Museum, n.d.; Montréal Museum of Fine Arts, 2020) – introducing elements of individuals' history such as age, sex, health, death, and funerary treatment – many websites had a more minimalist presentation, with the suggestion that these would be themes explored within the actual exhibit, perhaps as a way to try and draw visitors in. Although some exhibits were less detailed about their explorations of individual lives on their websites, a number of museums still utilized their websites to ground their exhibits in the idea of telling stories about people (e.g. Denver Museum of Nature and Science, n.d.; Smithsonian National Museum of Natural History, n.d.). A popular approach was to provide an explication of mortuary treatment as a product of the cultures and beliefs from which it arose, highlighting how funerary practices can reflect the identities of the dead as well as the living. In communicating exhibits this way, museum practice appears to reflect participant perceptions about approaches to bioarchaeological knowledge

mobilization projects, as well as their goal to humanize and address sensationalism around human remains.

Online strategies and tools used to mobilize bioarchaeological knowledge (either explicitly identified by the museum or implicitly suggested by the design of their website), also showed a general alignment with participant perspectives. Several websites included introductions to foundational concepts in their exhibit. This meant including definitions of popular terminology, such as “mummy” or “canopic jars” (e.g. Amarna Centre, n.d.; Field Museum, n.d.). Some websites also included a brief exploration of what bioarchaeologists mean when they talk about someone being ‘mummified’ and how mummification practices may appear in the bioarchaeological record. Additionally, in many cases, there appeared to be a focus on creating engaging visitor experiences and several websites made mention of interactive and/or immersive features (e.g. Houston Museum of Natural Science, n.d.; Legion of Honor, n.d.; Royal Ontario Museum, n.d.). The incorporation of touch screen tablets (commonly referred to as autopsy, virtopsy, or dissection tables) and reconstructions of the funerary environment of the dead were two elements that were identified on multiple websites as notable features for visitor engagement. In addition to references to interactive elements within the exhibit itself, some museum exhibit websites included embedded or linked videos, allowing for individuals to hear from different professionals about the topic at hand or gain deeper insight into the research that has been done. The inclusion of virtual tours and links to educational exercises that may be done at home or in the classroom provided opportunities for engagement with the museum exhibit in deeper ways outside of the museum space.

Although the creation of dialogue is an aspect of the bioarchaeological knowledge mobilization process that may be less well-suited to an exhibit website, a few museums included statements on their websites that provide visitors with additional context regarding the human remains who are housed within the museum, how they came to be there, and, in some cases, why they are not on display (e.g. Kalamazoo Valley Museum, n.d.; Museum of Us, n.d.; Toledo Museum of Art, n.d). The Museum of Us (formerly the Museum of Man) in San Diego, California provides one of the more in-depth examples of this practice on the website for their permanent exhibit, ‘Ancient Egypt,’ stating:

In Fall 2018, we removed the remains of eight people from display in this gallery. They were moved to a sanctuary space where they have been looked after alongside more than 5,000 other individuals currently in the Museum’s care.

We also removed the remains of two ancient Egyptian individuals from display in this gallery. These human remains were loaned to our institution from the Natural History Museum of Los Angeles County, and that loan has been recalled.

Many of these human remains were taken from burial sites for the purpose of research and display, often without permission from the deceased, their family, or descendant communities.

The Museum of Us recognizes that all people should have the right to decide how their bodies, and those of their relatives and ancestors, will be treated after death. For each of the individuals whose remains are held at this museum, we will seek out descendants with whom we can consult on how to best care for the remains of their forebearers (Museum of Us, n.d.).

While statements as detailed as that above appear to be an infrequent practice, their inclusion on an exhibit’s website can serve to make visitors more informed about the content with which they are engaging. In addition, these statements offer an opening for the conversations that many participants felt museums should be having with visitors about who the people in these exhibits are and what is ethical bioarchaeological and

museological practice. In creating this transparency, the museum begins to deconstruct the traditional narrative of the museum as the ultimate cultural authority, signifying their awareness of current conversations happening within the professional museum space and the wider social milieu, as well as indicating their openness to change. This may then create additional opportunities for dialogue with museum visitors and respectful collaboration with descendant communities.

While many of the elements of effective bioarchaeological knowledge mobilization projects discussed by participants were reflected in museum exhibit websites, there was one area that I felt was less represented. A number of websites promoted a scientific focus in their exhibits, referencing various bioarchaeological research methods, such as non-destructive techniques (CT scans, x-rays), ancient DNA (aDNA), and/or 3D reconstruction as providing important contributions to their exhibit's development. As discussed in Chapter 3, explaining the basic premises of these technologies and their place within the larger picture of bioarchaeological research can benefit a knowledge mobilization project by bringing individual lives into focus through their osteobiography, sharing their stories, and, in a way, animating the past through these narratives. However, these technologies may also pose a risk for objectification, should their purpose, limitations, and findings fail to be appropriately contextualized for visitors within bioarchaeological knowledge mobilization projects (as discussed in Chapters 1 and 3).

While a few websites provided in-depth discussions of the purpose of these techniques and their significance and contributions to bioarchaeological understandings of past lives (e.g. Kalamazoo Valley Museum, n.d.; Montréal Museum of Fine Arts, n.d.), most of the websites studied did not provide further explanation. Although it is possible that these

topics were elaborate upon within the exhibit itself, I think it is important to recognize that various participants in this study highlighted that many bioarchaeological methods are unfamiliar to more general audiences, and that this lack of understanding can create barriers to meaningful communication. In light of participant discussions about how providing deeper insight into bioarchaeological research processes can make understanding the decisions and conclusions of bioarchaeologists more accessible to visitors, I think it is important for museums to consider and acknowledge the potential that websites hold for the early establishment of foundational concepts. Additionally, I think it is important for them to recognize the impact that omitting deeper discussions of research methods and their purpose from introductory materials may have on visitor expectations of and engagement with a museum exhibit.

Analyzing the websites for implicit (and potentially unintentional) messaging within museum communications raised another area of dissonance. While the majority of participants emphasized the importance of representing human remains as people to their visitors, there were elements on almost every exhibit website that communicated human remains as objects in some regard. This was particularly prominent in how exhibits featuring human remains were marketed.

The repeated framing of bioarchaeological museum exhibits through the lens of “revealing secrets” and “digital unwrapping,” particularly in reference to exhibits featuring Egyptian mummies (which constituted a large portion of the exhibits studied), takes advantage of stereotyped portrayals of mummies as mysterious and unknown; they are a “secret” that museums can share with their visitors. While this may be an approach that museums use to address the mystery that many people feel surrounds death and the

dead, while using bioarchaeological research to show them as people worthy of respect, I believe it is crucial to be cognizant of the alternative messages that these projects may communicate. In creating these narratives of secrecy, museums risk contributing to ongoing sensationalism around dead bodies and reinforcing existing preconceptions of these remains as ‘mummy’ rather than ‘person.’ The observed trend towards using promotional imagery centering on human remains and providing little to no context about the people being shown or why they were being displayed, may further perpetuate morbid curiosity. Additionally, museums must recognize that this method of marketing evokes the harmful history and practices of early collectors who viewed mummies as strange and exotic objects, bringing them back as souvenirs from their trips overseas as status symbols and entertainment for their unwrapping parties (Moshenka, 2013).

A less common occurrence, yet still worth noting, was the lack of distinction between human remains and the artifacts in a museum’s collection. While most (although not all) websites refrained from using terminology such as ‘specimen’ in their discussions of human remains who are housed in the museum, there were a number of instances in which websites made statements to the effect of: human remains and *other* artifacts from the museum’s collection. The use of “other” in these instances suggests an association between human remains and the category of artifact that creates a more subtle, but no less harmful, message of objectification.

### 4.3 Identifying Barriers to Praxis

In trying to understand why this disconnect occurs between professional perspectives on bioarchaeological knowledge mobilization practices and museum actions, I think it is important to examine barriers to the bioarchaeological knowledge mobilization process

that may exist on an institutional level. While many participants discussed barriers to bioarchaeological knowledge mobilization on a more individual and societal level, addressing factors that have a more direct influence on visitor interactions, a couple of participants also noted challenges that existed within the museum system itself, especially within Canada and the United States. Of particular concern to these participants were the impacts that financial and administrative issues could have on the way the museum operates.

Exploring the impacts of financial issues, one participant explained that while they felt that education should be the ultimate goal of the museum, the challenges posed by funding structures do not always allow for the prioritization of that duty. As a result, they recognized that the museum must be able to adapt to different roles, balancing their dedication to education and community with the need to meet the expectations of funding sources. As the participant shared:

We don't necessarily want to walk into an empty gallery with one beautifully lit celadon pot in the middle. I mean I like celadon pots, don't get me wrong. [But] if you've got a whole gallery, I want stuff in there. I want to know who made that celadon pot and why they made it? And was slave labor involved? And who bought it? And how did it get from the man who made it to the person who bought it? And what did it cost in terms of the time period? I want to know all that stuff. Otherwise, it's a shape, you know? It's nothing. It's meaningless... [But] if you're having a corporate party, well, it's fine to have the celadon pot beautifully lit over there because what we really want to do is talk to each other about business and drink our cocktails. And museums have to balance because we need the money. We have to say, 'Yes, come on in. Take over those two rooms, they're all yours. And we'll have some nice artifacts in there, and lots of celadon pots you can look at, and you can have your banquet in there.' And they will pay very good money, and that keeps us going. But it can't be all for the corporate sector (EE).

As the quotation from EE highlights, there is a fundamental disconnect, at least in Canada and the United States, between the perceived role of the museum as a place of community

heritage and education and the amount of public financial support that is given to these spaces. While many museums receive some public funding, there seems to be an expectation that museums should be able to support themselves financially and bring in income through sources such as admissions fees. This was a point that EE also touched upon in their discussion of navigating public and private interests in the museum.

However, we must recognize the impacts that this commercialization of the museum may have. First, in making it necessary to pay to access public heritage, it is likely that the museum will continue to be an exclusionary space, privileging certain communities over others and preventing it from acting as an open space for knowledge mobilization.

Second, it is possible that in attempting to meet these financial standards, professional perspectives on appropriate presentations of human remains and bioarchaeological knowledge may become peripheral to more sensationalistic materials that are perceived to be more appealing to the public. This would result in the objectification of human remains, which could present in similar ways to what I observed in my analyses of the exhibit websites.

The inadequate funding of museums can also place restrictions on other museum resources required for their functioning. One such area of restriction may be the number of paid staff that a museum is able to employ or their potential rate of pay, generating a higher need for volunteers. Speaking with one participant about the role of docents, they shared that many museums rely on volunteers for this position, which they felt does not always lead to satisfactory knowledge mobilization outcomes. As Chapter 3 of this thesis established, docents are considered by many professionals to be an important part of successful bioarchaeological knowledge mobilization projects as they may help create

dialogue with visitors. In providing visitors with an accessible and knowledgeable person to whom they can direct their questions, the museum increases the number of opportunities present for more meaningful and personal engagement to be created. However, it is not difficult to recognize the potential consequences that relying on volunteer labour may have on this role's effectiveness. As many people are unable to hold a full-time volunteer position, especially with the high cost of living in today's economy, it is likely that time limitations will impact the familiarity that a docent has with the subject at hand and/or their availability for the role. Additionally, life demands may require volunteers to remove themselves from non-essential obligations, potentially resulting in high docent turnover, creating potential gaps in the knowledge framework and relationships of a museum.

In addition to the challenges posed by docent turnover, some participants discussed how hierarchies within the museum may have an impact on their approaches to education, particularly in times of change. These impacts could be the result of internal changes within the museum's own guiding bodies or external changes within the fields of bioarchaeology and/or museology. EE touched upon both types of change, stating:

Museums change a lot because our boards of trustees change a lot. And directors usually stay for five years and move on. Sometimes they're extended for eight years. And every one of them will have a different point of view, usually, depending on whether that person came from botany, or geology, or was an archaeologist. And of course, whatever their own specialty is, it's the most important one... So, the opinions change all the time. And there are also styles in museum studies. There'll be a new theory about human remains and suddenly your museum is having to jump to this new theory. And then [that] theory is gone and there's another new theory. So, the theories can be very annoying when you're actually trying to hold fast to who was this person? What was his life like? How do we know?... If you want to look at those facts, all these theories from a lot of people who either don't like mummies or never saw one in their lives can be really annoying (EE).

Another participant shared a concern about how authoritative bodies within the museum may also serve as not just barriers to knowledge mobilization, but also as barriers to progress within the museum space by preventing the uptake of new practices that they worry might draw attention to the museum and bring potential social backlash. In particular, this participant shared with me the story of an individual who had the permission and full support of an Indigenous community in Australia to do an osteological study. However, when it came time to share his work, the project was buried without consultation with the community by authority figures who claimed to have no knowledge of the project, as they did not want to face the potential backlash that a project involving Indigenous remains could bring. And while this was the only detailed account of this type of situation the participant had to share with me, they had heard of other cases of a similar nature happening to other professionals in the field. As a result, they wanted to draw attention to this as an area of potential danger.

Participants' observations regarding financial and administrative issues faced by museums emphasize that there are internal barriers to bioarchaeological knowledge mobilization. While likely not an exhaustive coverage of the barriers that museums face, they offer a starting point to begin investigating and addressing threats to a museum's ability to create and maintain reflexive bioarchaeological knowledge mobilization projects.

#### 4.4 Examining How Bioarchaeological Knowledge Mobilization Can Contribute to the Application of Praxis

To conclude this chapter, I want to take the opportunity to explore the features of effective bioarchaeological knowledge mobilization outlined by participants in this thesis

in relation to a real-world example, wherein I can discuss the incorporation of both digital and physical presentations of bioarchaeological knowledge. I draw upon my own experiences in conjunction with public accounts regarding the mummies of Guanajuato, Mexico to examine the museum in relation to its historic and sociocultural context, public attitudes towards the human remains housed within its space, and challenges in attaining bioarchaeological knowledge mobilization outcomes.

Guanajuato provides a uniquely situated context to explore the bioarchaeological knowledge mobilization process; it is home to the Museo de las Momias de Guanajuato (Guanajuato Mummy Museum), which houses the largest number of natural mummies in the world: 111 individuals (Presidencia Municipal de Guanajuato, 2021b). These individuals are reflections of the region and its history, having been unintentionally mummified during their interment at the Santa Paula Municipal Pantheon Cemetery, which lies just behind the museum. Exploring the significance of this cemetery, the website of the Museo de las Momias de Guanajuato states:

*For more than 150 years, the living and the dead of multiple generations and from all social strata of Guanajuato have passed through the great cast iron gate (which alludes to the transparency between life and death) at the entrance of the Municipal Cemetery of Santa Paula... The stone vases on the façade have illuminated these processions, and **will eternally illuminate the spirituality and mysticism of the inseparable marriage between life and death**, for the awakening of the living and the honor of the dead (translation by the author, emphasis in original). (Presidencia Municipal de Guanajuato, 2021a)*

The Municipal Cemetery of Santa Paula opened in 1861 and by 1865 overcrowding led to the implementation of a grave tax that remained in effect until 1958 (Beckett & Conlogue, 2014). As a result, individuals who did not have anyone to pay the tax required to maintain their grave in perpetuity during this time were disinterred (Beckett &

Conlogue, 2014). The first individual disinterred, and subsequently the first mummy discovered within the cemetery, was Remigio Leroy, a French medic and resident of Guanajuato, who was removed from his tomb on June 9, 1865 (Aréchiga, 2019, cited in Wright, n.d.). Not knowing that the cemetery environment provided excellent taphonomic conditions for the natural mummification of a body, Leroy's state of preservation was shocking to those who exhumed him (Aréchiga, 2019, cited in Wright, n.d.). The uniqueness of the circumstances led to Leroy being displayed in the cemetery's administration office, where he attracted many curious visitors (Aréchiga, 2019, cited in Wright, n.d.). Over time, more exhumations led to the discovery of additional mummified individuals, resulting in their move to a below-ground crypt by undertakers (Aréchiga, 2019, cited in Wright, n.d.). As word and intrigue around mummified individuals from the cemetery grew, night watchmen began offering tours of the mummies for a fee (Beckett & Conlogue, 2014). Recognizing this public interest, the government established the official Museo de las Momias de Guanajuato in 1894 (Beckett & Conlogue, 2014).

While foreign tourists to the region often have a hard time understanding the museum's existence and purpose, many Mexicans see it as another part of Mexico's culture and attitudes towards death (Barger, 2022). In a statement to National Geographic, Dante Rodriguez Zavala, a Mexico Street Food Tours guide, shared:

For travelers from other parts of the world, I really have to put the museum in context... For Mexicans, this isn't bizarre or weird. We have a comfort level with death—we take food to our dead loved ones on Day of the Dead and invite mariachis into the cemetery (Barger, 2022).

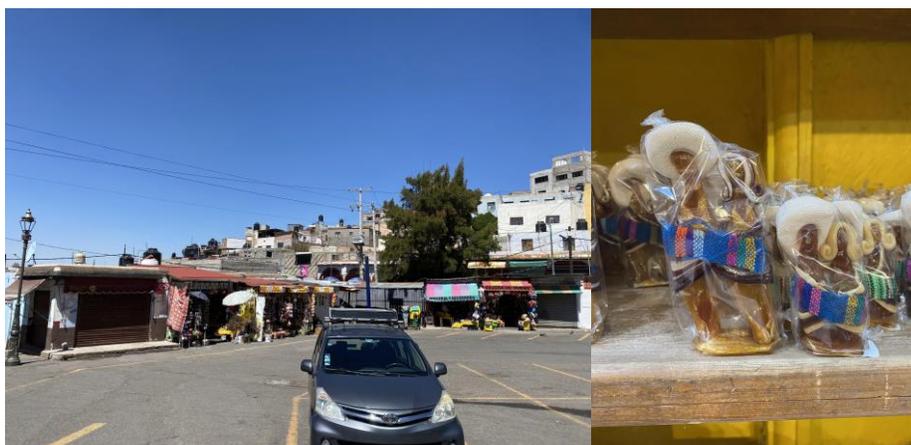
As this statement highlights, there are many groups of people who may hold a connection to the museum, highlighting that these institutions have diverse audiences. Some of these audiences for the Museo de las Momias de Guanajuato might be descendants of the mummified individuals, locals who rely on visitors to the museum for their income, members of the local and national community who see the mummies of Guanajuato as representatives of their history and culture, government groups who rely on the mummies to help drive tourism and the economy, or foreign tourists who come to visit. With all of these audiences comes different needs and expectations for the museum, which I will explore throughout this section.

In line with Mexico's attitudes towards the dead, the mummies of Guanajuato have been viewed as part of the city's cultural heritage and celebrated as its "geographical and cultural ancestors" (Presidencia Municipal de Guanajuato, 2021b, translated from Spanish by the author). The individuals reflect a picture of life and funerary tradition in the region in the 19<sup>th</sup> and 20<sup>th</sup> centuries, providing a window into the past for visitors to the museum (Beckett & Conlogue, 2014). A group of infants, referred to as 'angelitos' in reference to the way they were dressed for burial, provide one of the most notable examples. Exploring the significance of this funerary practice, Beckett & Conlogue (2014) state, "The girls were dressed in a very formal manner suggesting that they were representing angels, or angelitos. The boys were often dressed as the Saint who represented the month of their birth or the month of their death. This was a common practice among the Catholic traditions of the time, indicating the child's purity and ensuring his path to heaven" (p. 239).

However, the significance of the Guanajuato mummies does not only come from their status as representatives of the city's past. These individuals are also a large contributor to the city's economy by promoting tourism to the region (Barger, 2022). As Juan Manuel Argüelles San Millán, Director of Physical Anthropology for Mexico's National Institute for Anthropology and History (INAH), expressed to National Geographic, "The mummies of Guanajuato bring the biggest economic income to the municipality after property tax... Their importance is hard to overstate" (Barger, 2022). In drawing visitors to the city and promoting Guanajuato's heritage to newer generations, the mummies also act as "cultural ambassadors" (Barger, 2022).

During my visit to Guanajuato in June, 2023, I was able to see evidence of the cultural and economic significance of the mummies to the area. This was especially true around the Museo de las Momias de Guanajuato, which I observed when we visited with Michael on our second day in the city. Almost immediately upon our arrival to the museum, I was reminded of the museum's national importance. As we made our way up to the museum, we observed a large van full of people in the parking lot, which Michael stated was a common occurrence. As he explained, many people from other areas of Mexico will gather their families together for a road trip to Guanajuato to visit the museum and connect with their ancestors. He shared that several times throughout the year, the museum will be packed, and people will wait in line for hours to enter. While we were early to the museum, partially in an attempt to avoid times of high traffic, we still passed a number of other visitors, including a large group receiving a guided tour in Spanish. Standing in the museum's parking lot after our visit, I also witnessed that many locals relied on the museum's traffic for their businesses. In addition to the tour guides

(who were paid by the visitors), there were various vendors whose stalls lined the sides of the parking lot (Figure 1A), as well as some individuals who waited for visitors to arrive to guide in parking their cars, and people who walked around selling ‘charamuscas’ (treats made of shaped sugar meant to resemble a mummy). The sale of charamuscas was not restricted to the area around the museum either. Walking through the city, a number of stores and street vendors offered them for sale as well (Figure 1B).



*Figure 1A. The vendor stalls lining one corner of the museum’s parking lot. Figure 1B. Charamuscas sold in a local store. (Photos by the author).*

While some individuals belonging to the museum’s communities have a positive opinion of the museum, there are also members who have criticized it and view it as the subject of controversy. Luis Garcia, another tour guide in Guanajuato, shared with news source France24 that he "would find it disrespectful if one of my relatives were in the exhibition" (France24, 2023). Garcia’s opinion echoes that of various others, who take issue with the museum’s treatment of the mummies, deeming it to be improper or exploitative (Barger, 2022; France24, 2023). At a minimum, concerns have been expressed by members of the local and national community over preservation issues

faced by the mummies, including their display in an upright posture (Barger, 2022; France24, 2023), the positioning of lights close to the heads of several mummies (France24, 2023), and the presence of mold that has been detected on some of the mummies by the INAH (Barger, 2022; Mexico News Daily, 2023). A number of recent decisions made in regard to the mummies have also drawn various complaints. The local government's plan for a new museum building to be opened above a downtown shopping center was deemed inappropriate by many, receiving the disapproval of UNESCO as well (Barger, 2022). Additionally, the decisions to display a selection of mummies in alternative settings, including in the underground tunnels of the city during a car rally and a four-day fair in Mexico City, have been questioned by community members and the INAH (Barger, 2022; France24, 2023; Mexico News Daily, 2023). In regard to the transportation of the mummies to the fair in Mexico City, the INAH criticized the move, emphasizing the need for the mummies to "be carefully studied to see if these represent signs of risk for the cultural patrimony, as well as for those who handle them and come to see them" (Mexico News Daily, 2023) before such actions should be taken.

In exploring the online presence of the museum and touring it in person in Guanajuato, I could see how the presentation of these individuals could be considered exploitative or sensationalistic. There is not much context given about the museum's inception or any of the specific individuals on the museum's website ([Presidencia Municipal de Guanajuato, 2021b](#)). The homepage contains a brief paragraph detailing the number of individuals on display in the museum and acknowledging them as ancestors of the city, a quotation from Mexican poet and diplomat, Octavio Paz, inviting visitors to reflect on the interaction of life and death, and a section linking to information for visitors to the museum.

The website's "About" page ([Presidencia Municipal de Guanajuato, 2021a](#)) supplies more historical context for the cemetery where the individuals housed in the museum were initially laid to rest, the cemetery's significance to the community, and its relationship to cultural perceptions of death in Guanajuato. This page also gives an explanation of the mummification process and how natural mummies may be created. The information on this page provides some educational information regarding basic bioarchaeological concepts through its identification of what mummification is and also connects individuals in the museum with their wider sociocultural and historical contexts, but still lacks many of the features of effective bioarchaeological knowledge mobilization discussed in earlier chapters. Most significantly (although not uniquely, as many other websites examined earlier in this chapter also lacked this component), it fails to address the positionality of the museum. The website does not acknowledge how these individuals came to be housed in the museum and considered "cultural heritage" to be overseen by the local government, which is one area where the museum could be criticized for being exploitative.

The Photo Gallery page of the website ([Presidencia Municipal de Guanajuato, 2021c](#)) is another area in which exploitation should be a concern. As with the previously discussed exhibit websites, the website's photo gallery contains uncontextualized images. However, in contrast to the majority of exhibit websites from earlier, the images of human remains on the Museo de las Momias de Guanajuato's website are all lacking context. There are no attempts on the website to recognize who any of these people were or connect with their humanity. The gallery largely highlights individuals whose appearances, as a result of the natural mummification process, may be shocking to an unfamiliar public audience.

With a lack of context elsewhere on the website, there is no real attempt for respectful bioarchaeological knowledge mobilization, and the museum website likely contributes to the sensationalist and objectivist narratives that one may frequently encounter when searching Guanajuato or the Guanajuato mummies in online spaces, which speak of these individuals as “terrifying,” “gruesome,” or “haunting.” I have provided an example of one such post in Figure 2 below.



*Figure 2. An Instagram post that perpetuates sensationalist narratives about the Guanajuato mummies (Post from Weird History by Ranker, 2023).*

The physical museum space also did not appear to do much in the way of dissuading these sensationalist narratives. Touring the museum, I did not feel there was a dedicated effort to foster lasting connections with the ancestors and ambassadors of Guanajuato and its heritage, nor did I witness many attempts at sharing the bioarchaeological research that has illuminated details about the lives of a number of the individuals housed in the

museum. In many ways, the museum's environment was more conducive to a brief walkthrough than to education or prolonged reflection.

While some individuals had labels which gave their name and/or a short text detailing what is known or assumed about their identity, many lacked any form of description. Additionally, despite research done by Gerald Conlogue and Ronald Beckett since the early 2000s, which has led to a number of opportunities for academic bioarchaeological knowledge mobilization (see Appendix B for a non-exhaustive list), there was a scarcity of bioarchaeological research incorporated within the museum's displays. In the few instances where bioarchaeological information was included, it took the form of x-rays or plain-text labels. However, the information contained in these displays was inaccessible to its intended audiences. The text descriptions of bioarchaeological research were jargon-heavy, featuring many undefined scientific terms. Additionally, the labels provided no explanations of any of the research methods (e.g. CT scans or densitometry – a procedure for studying bone density) nor did they indicate how this research was significant for our understanding of the deceased individual or their society. The x-rays that were present were also devoid of explication, leaving visitors unable to ascertain which individual was featured in the x-rays, what it is that researchers are seeing within these images, or how they contribute to a fuller understanding of past lives. An example of these uncontextualized x-ray displays is featured in Figure 3 below.



*Figure 3. A collection of x-rays displayed in the Museo de las Momias de Guanajuato which lacked context. (Photo by the author).*

The inaccessibility of information was further perpetuated by the failure to draw connections between individuals who are on display, their x-rays, and what bioarchaeological research has been able to tell us about them. The result is three disparate sources of information, all of which remain inaccessible to museum visitors. This severely limits opportunities for meaningful engagement with bioarchaeological knowledge, impeding successful bioarchaeological knowledge mobilization, as well as

increasing the risk and creating the environment for objectification and sensationalization to occur.

The culminating impact of the museum's uncontextualized displays in creating anonymous bodies was most starkly represented for me by a display which featured approximately ten individuals (some of whom are not pictured below), all lined up, standing against the wall. Associated with this display was a small, singular label that was located about six inches above the head of one mummy. This display is pictured below in Figure 4, with a yellow arrow pointing towards the label.



*Figure 4. A display in the Museo de las Momias de Guanajuato which features several individuals with only a singular label above one individual's head (indicated with a yellow arrow). (Photo by the author).*

The label within the above display discusses the results of a densitometry study, highlighting how a single male mummy compared to previous studies done with an older and a younger sample population. It shares that the results of this study determined that this individual, in comparison with the younger sample population, showed symptoms of moderate osteopenia (a condition marked by the loss of calcium within an individual's bones, causing their bones to lose density and become brittle). However, in discussing this research the label followed the pattern discussed above. Not only was the information physically inaccessible due to the label's location, but the description of the research also provided no conceptual foundations upon which visitors could come to understand the significance of these findings. Particularly important to building a basic framework of understanding in this case would be why bone density research may be conducted and what it could help us understand about past populations, as well as what osteopenia is and its potential impacts on an individual's life. Without these discussions, the research appears disembodied and disconnected from any real-world context. This effect is furthered by the absence of explicit connection drawn between the summary of the research and the individual below it (which are assumed to be related based on the positioning of the label). Altogether, these factors can create a sense of these individuals as anonymous bodies for research and display.

The anonymity of many of these individuals begins with the museum's origins in the 19<sup>th</sup> century in the underground crypt, where a number of their accompanying nametags were taken by visitors as a souvenir of their tour (Barger, 2022). To compensate for these gaps in the knowledge, museum guides and other locals have invented stories about the lives and deaths of various individuals, often drawing on aspects of their post-mortem physical

appearance to build dramatic narratives for visitors (Barger, 2022; Beckett & Conlogue, 2014). Two well-known figures who have received such treatment are a woman referred to as ‘La Bruja’ (The Witch) and a man referred to as ‘El Ahogado’ (The Drowned Man) (Barger, 2022). During our time in Guanajuato, we visited ‘La Bruja’ who, at that time, was on display in an exhibit housed in the basement of a church (Figure 5 below). Her display case was surrounded by bars and wrapped in chains. The sign beside her spoke of a woman who is rumored to have eaten children from the neighbourhood during her life and periodically return from the dead to leave scratches on her travelling cases.



*Figure 5. The display for 'La Bruja' in the basement of a church, including the sign next to the barred and chained cage. (Photo by the author).*

During my visit, I was deeply uncomfortable with the picture her display painted and its impact on perceptions of her identity. Consequently, I think that it is important to recognize that while these stories can aid the museum in drawing attention to Guanajuato and itself, stimulating tourism, the creation and perpetuation of false narratives surrounding people's ancestors can also be harmful and disrespectful, particularly to surviving descendants. Recent actions of the INAH and its members (referenced above and discussed below) in response to complaints about the mistreatment of the mummies suggest that I am not alone in this thinking, and a shift away from such approaches may be occurring.

Currently, the INAH is working on gathering historical information related to individuals interred in the Municipal Cemetery of Santa Paula from sources such as death certificates, church records, and newspapers, in the hopes of ascertaining the true identities of the individuals displayed in the museum (Barger, 2022). The incorporation of forensic/bioarchaeological methods, such as x-rays and DNA analysis, to determine whether there are any living descendants is also possible (Barger, 2022). While forensic analysis is being considered to draw connections to living relatives, this is also a project that is well-suited to bioarchaeological research. As scientific examinations of most of the mummies at the museum have been done (Beckett & Conlogue, 2014), the incorporation of bioarchaeological research with historical sources could aid in creating a more complete picture of the lives of many of these individuals. It could also potentially provide information that would be useful when matching written records of people with their remains in cases where the post-mortem appearance of an individual is significantly different from their appearance as it was recorded in life. Returning to the woman

referred to as ‘La Bruja,’ we can see the difference between her life as depicted by the bioarchaeological record and the stories which surround her in death. While her real name is not currently (and may never be) known, bioarchaeological research reveals other elements of her identity:

[Her] spine showed considerable arthritis, as did her hips. The spine was so affected that she had a hunched forward appearance due to compressed and collapsing vertebrae. [She also] had evidence of several dental abscesses and imaging analysis revealed calcifications in various vessels including the aortic arch and the descending aorta. Hair analysis revealed high levels of iron, lead, sulfur, tin, and mercury. The information gathered indicates that this was an elderly woman who, because of her widespread arthritis, had great difficulty in moving about. Her hair analysis suggests that she was a long-time resident of this mining area. Her burial clothes suggest that she was of middle or higher status and that she likely was an active member of the society of her time. One certain thing is that she lived a long life and was well cared for over many years prior to her death, as she would have needed assistance with activities of daily living. The “witch” moniker was likely applied when she was exhumed and put on display in the museum (Beckett & Conlogue, 2014, pp. 240-241).

The implementation of more bioarchaeological knowledge mobilization practices in museum spaces in Guanajuato would also help in addressing areas where the museum’s current approaches fail to meet diverse community needs and expectations.

Drawing on the photography exhibition, *Tierra Ósea* (discussed in Chapter 1), we can visualize how a multidisciplinary approach, connecting bioarchaeological research with other fields of practice, could aid in addressing challenges the museum faces as an educational institution while also maintaining the other sociocultural aspects of their space that are important to local and national communities. Describing the objectives of their exhibition, *Tierra Ósea* (2023) states:

*Tierra Ósea* is a photographic exhibition by documentary photographer Michael James Wright that narrates the journey of a multinational team of

scientists and their research on the Guanajuato's mummy collection. The photographs are an approach to the experience of the documentary essay process. **Art at the service of science** (Emphasis in original).

By the time we visited Guanajuato, Tierra Ósea was in its second iteration. In a new location and expecting a different audience than their first version of the exhibition, the team took a different approach to the subject. While the first exhibition was more in line with a traditional museum format and included more labelling, the exhibition for the university followed closer with displays seen in photography galleries, resulting in less explicit exposition of the purpose and intentions behind each individual piece. However, both versions of the exhibition can still be toured virtually on the Tierra Ósea website (<https://www.tierraosea.com/en/recorrido-virtual>).

Despite the changes to the second exhibition, it still provided opportunities for visitors to engage with contextualized bioarcheological knowledge. In regard to the exhibition itself, the attentive curation by Fatima Alba Rendon Huerta allowed for visitors to draw associations between the selected images, telling a story by positioning pieces of Wright's photography – featuring the mummified individuals of Guanajuato, various cultural practices around death, and behind-the-scenes photos of bioarchaeological and conservation work – in relation to the history of photography and art regarding death in the region, as well as x-rays taken by Beckett and Conlogue in the early 2000s. Although not a traditional approach to bioarchaeological knowledge mobilization, this alternative approach likely benefitted the exhibition by allowing it to be more in line with the expectations and experiences of its anticipated audience. Following lines of thinking from earlier in this thesis, this likely generated more interest in the subject and provided new audiences as well as new avenues for discussion and engagement.

Examining the narrative presented by Tierra Ósea, I observed their use of a holistic approach that explored the concept of death through multiple lenses. In recognizing the roles of history, culture, art, and bioarchaeology in shaping understandings of the Guanajuato identity, the exhibition brings the past and the present into conversation with one another and reveals how death connects us all across time and culture. Additionally, utilizing the exhibition as a form of documentary essay can make heritage more tangible for people, creating a visual record of various moments in time that may otherwise largely go unrecognized or forgotten. This can create opportunities for increased transparency and critical dialogue to occur by bringing background processes into focus. The exhibition's inclusion of photographs highlighting the realities of the state of preservation of various individuals are an excellent example of this. Furthermore, by supplementing the exhibit's content with tours led by the photographer, lectures from the Academic Conference in Death (which remain publicly available on [Tierra Ósea's YouTube channel](#)), and access to previous iterations of the exhibition on their website, Tierra Ósea provides opportunities for individuals with different knowledge levels to accessibly engage with its content. This in turn can create the potential for reflexive, multi-vocal conversations about bioarchaeological knowledge mobilization practices to occur.

## 4.5 In Summary

Returning to the underlying theme of this chapter, praxis – the continued reflection on both theory and practice, so as to form a reflexive process of “theory-as-practice and [practice-as-theory]” (Kreps, 2020, p. 8) – is essential to the creation of sustainable and dynamic bioarchaeological knowledge mobilization projects that reflect the needs of the

communities for which they are created. The analysis of museum websites highlighted that many incorporate elements of effective bioarchaeological knowledge mobilization as identified by participants in Chapters 2 and 3, like providing foundational terminology and concepts that are critical for meaningful engagement with bioarchaeological knowledge, as well as providing other modes of interaction for audiences, such as audio and video clips. However, it also underlined areas where practice failed to coincide with participant theories about effective bioarchaeological knowledge mobilization practices. The failure to utilize the full potential of the website to introduce audiences to, and prime them for, interactions with more complex bioarchaeological concepts, such as CT or x-ray technologies or aDNA research, as well as the reliance on imagery and language (or lack thereof) that objectifies and sensationalizes human remains were identified as aspects likely to have negative impacts on a project. In particular, the lack of alignment between professional perspectives and demonstrated practice may cause bioarchaeological knowledge mobilization projects to stray from their intended goals and minimize their real-world impacts within their communities. Addressing financial and administrative barriers that likely encourage the sensationalism and commodification of these projects in the name of marketing and the success of the museum could help in the fulfillment of praxis within museum bioarchaeological knowledge mobilization projects.

Following this analysis of museum exhibit websites with the case study of Guanajuato, Mexico, this chapter expanded upon previous observations on the application of praxis, extending to both online and real-world spaces. Examination of the Museo de las Momias de Guanajuato website revealed that it faced some of the same issues as the other websites. There was a lack of integration with bioarchaeological research methods and a

reliance on sensationalism to market the museum's content. Furthermore, visiting the museum in person did not help in bringing participant perspectives into closer alignment with practice. The museum's content mirrored that of the website, providing a largely surface level experience. While the museum serves one of its primary purposes in Guanajuato, bringing in tourism and aiding the local economy, the lack of information about the individuals displayed in the museum or explorations of their connections to the cultural heritage of the region, gave me first-hand understanding of the empty nature of these kinds of experiences and how they could challenge museum professional attempts to humanize human remains and create connections between individuals of the past and present. Exploring how other projects related to the Guanajuato mummies have engaged with their identities, lived experiences, and sociocultural connections to the region highlight that thoughtful integration of bioarchaeological knowledge within museum projects could aid museums in aligning their practices with the changing needs and wants of its diverse communities, especially as people may become more cognizant of the ethical implications of sensationalized display.

Moving forward, the following changes to the museum and its website would bring the Museo de las Momias de Guanajuato's approach to human remains into better alignment with the recommendations suggested by the museum professionals and sources discussed earlier in this thesis. Of primary significance would be integrating more information gained from bioarchaeological research into the museum and its website in ways that contextualize this information for its audiences and reunites the individuals on display with their identities (as told by osteobiographies and other mortuary context) in order to share their stories. Fundamental to achieving this goal would be the articulation of this

information in ways that indicate the significance of bioarchaeological research to our understanding of past lives and past societies, while also grounding this research within its purposes and methodologies. Additionally, ensuring that these ideas are developed using plain language (ideally in both Spanish and English) and defining foundational terminology and concepts would improve the accessibility of this content. This contextualization and improved accessibility of bioarchaeological research could lead to deeper audience understandings of Guanajuato's history, culture, and heritage and the creation of meaningful connections between their audiences and these once-living people. Recognizing the potential of the museum website as a reflection and extension of the content within its physical space could also introduce different avenues of engagement. Thoughtfully incorporating various elements of effective bioarchaeological knowledge mobilization (as discussed in Chapters 2 and 3) could allow the museum to communicate bioarchaeological knowledge to wider audiences, including those who are not in a position to visit the museum. This may be particularly helpful in stimulating increased discussion online and combatting sensationalist narratives around the mummies of Guanajuato that are prevalent in digital spaces.

## Chapter 5

### 5 Conclusion

This thesis examines various aspects of the bioarchaeological knowledge mobilization process in relation to museums. In answering the question, “How might bioarchaeological knowledge be mobilized for the benefit of diverse museum publics in ways that present bioarchaeological research both accurately and appropriately?”, the research presented identifies the purpose, goals, and essential elements and contexts of bioarchaeological knowledge mobilization projects in the museum space, as well as some of the barriers that these projects face. This chapter provides a brief overview of what each chapter contributed to the overall understanding of the subject, before reviewing some of the key findings from this research that may provide guidance to future bioarchaeological knowledge mobilization projects. It will then conclude with a brief exploration of this study’s limitations and potential avenues for future research.

#### 5.1 Chapter Contributions

Chapter 1 of this thesis provided an introduction to the concepts of knowledge mobilization and the knowledge broker, as well as outlining the key research goals of this project. Examining popular ideas of knowledge translation and knowledge mobilization, this chapter established the core tenets of the knowledge mobilization process, conceptualizing it as the creation, dissemination, and utilization of knowledge in order to create value and impact from research findings. Additionally, these examinations

highlighted the importance of contextualization to the creation of meaning and the role of multidirectional knowledge flow in promoting sustainable and reflexive projects.

Chapter 1 also explored the ways in which museums can prove valuable as places of community heritage and engagement. The unique positionality of museums as spaces of merging anthropological theory and practice makes them an ideal knowledge brokers, able to frame bioarchaeological knowledge in ways that are meaningful to their associated communities and reduce barriers to value creation. Particularly integral to these relationships is understanding how the context of human remains within these spaces is related to a bioarchaeological knowledge mobilization project's appropriateness and is central to the creation of positive or negative perceptions of these projects.

In Chapter 2, I used the observations of museum professionals to define the role of museums in the bioarchaeological knowledge mobilization process. This further reinforced the place of museums as knowledge brokers, highlighting the ways in which they are capable of increasing the accessibility of bioarchaeological knowledge, fostering connections between the past and present, and creating space for community-oriented engagement. In serving these roles, museums are able to bridge the disconnect that audiences may feel exists between themselves and bioarchaeological knowledge as a result of the passage of time or the inaccessibility of bioarchaeological research.

Interviews with participants highlighted that a focus on a shared humanity, articulated through narratives of individual lived experience and reflections upon how visitors' own lives would be reflected in the bioarchaeological record allowed for the formation of personal connections. These connections increase the likelihood of experiences that result

in the co-creation of knowledge and the generation of scientific and/or sociocultural impact.

Chapter 3 built on this understanding of bioarchaeological knowledge mobilization practice within the museum, detailing the elements that participants deemed essential to the development of successful projects. Of particular importance was the foundational role that the development of accessible, appropriate, and accurate content plays in establishing something as “knowledge mobilization”. Additionally, the chapter explored how the significance of language, the incorporation of bioarchaeological concepts, the creation of dialogue with visitors, and the prioritization of cultural sensitivity and collaboration with descendant communities all promote more diverse, dynamic, and transparent bioarchaeological knowledge mobilization.

Finally, Chapter 4 aimed to place museum professionals’ perspectives into the context of wider museum practices, implementing the concept of praxis as discussed by Kreps (2020) and Freire (1998), which Kreps has deemed an essential part of maintaining a reflexive museum anthropology. The examination of museum websites performed in this chapter highlighted that there was a general alignment between theory and practice, although there were some areas in which participant approaches to the incorporation of bioarchaeological concepts and presentations of human remains as once-living people were challenged. These areas of discordance then led to an identification and discussion of the financial and administrative barriers to bioarchaeological knowledge mobilization within museums, as flagged by participants, which can lead to objectification. From this understanding of bioarchaeological knowledge mobilization and the barriers it can face, this chapter concluded with an exploration of bioarchaeological knowledge mobilization

practice within the specific temporal, spatial, and regional context of Guanajuato, Mexico. This case study highlighted some of the roles that a museum may hold apart from bioarchaeological knowledge broker, such as economic engine, while also addressing the role that the aforementioned elements of effective bioarchaeological knowledge mobilization play in facilitating respectful approaches to bioarchaeological subjects. Examination of the online and real-world presence of the Museo de las Momias de Guanajuato highlighted how the museum has been unsuccessful at fulfilling the role of bioarchaeological knowledge broker and the criticisms that members of local communities have posed about their treatment of the individuals in their care. Turning to other projects related to the Guanajuato mummies that are currently in progress, the chapter then explored the efforts of Tierra Ósea and the INAH to dignify the remains housed in the Museo de las Momias Guanajuato and how they generate more opportunities for the museum to meet the diverse needs of its communities and bring the museum more into alignment with professional praxis as identified in this thesis. The chapter concluded by providing a couple of suggestions that would bring the Museo de las Momias de Guanajuato's work with human remains into closer alignment with international museum practices and might improve the potential for bioarchaeological knowledge mobilization within the museum.

## 5.2 Findings Relevant to the Establishment of Future Bioarchaeological Knowledge Mobilization Projects

By investigating bioarchaeological knowledge mobilization theory and practice in museum settings, this study has engaged with both explicit and implicit factors that

influence bioarchaeological knowledge mobilization. In considering general ethical, educational, and scientific principles that arise from the literature in conjunction with the data from this study, this section reviews the key considerations for bioarchaeological knowledge mobilization projects identified throughout this thesis that may help guide the creation of effective projects in the future. A list of guiding questions based on these findings has also been included in Appendix C.

One of the central ideas in this thesis has been that positioning museums as institutions dedicated to community education and engagement provides the potential for them to serve as ideal bioarchaeological knowledge brokers. Participant observations supported this idea and suggested that museums can be particularly successful in this role due to their ability to provide tangible and more relatable approaches to bioarchaeological knowledge. In engaging audiences through the stories of individuals from the past, while also presenting how bioarchaeological research is able to tell these stories, museums are able to ground this research within the lives of modern audiences, connecting the past and present, presenting the opportunity for more meaningful engagement with these topics.

Participant advocacy (in Sections 2.3, 2.4, 3.4, and 3.5) for the benefit of visitor-led opportunities for learning within the museum space, suggests that the creation of less authoritative and more explorative museum projects can be especially useful for bioarchaeological knowledge mobilization. Museum professional reflections on what contributes to the successful mobilization of knowledge indicated that it was important to provide opportunities for visitor experience and engagement, as this allows visitor to explore their own questions and interests, interacting with bioarchaeological knowledge in ways that are relevant to their own lives. This process permits visitors to participate in

the knowledge creation process and offers the chance to co-create value. By engaging visitors in the creation process, these projects have the potential to generate a deeper understanding of and appreciation for bioarchaeological knowledge.

Participant discussions regarding their own experiences with audience-focused engagement suggested that integrating interactive elements and providing opportunities for visitor dialogue with museum representatives can be advantageous tools in the co-creation process. In providing easily identifiable ways in which visitors can decide how they interact with the content of a project, these tools facilitate visitor-led learning and make for a more flexible project, offering visitors a choice of the level and extent to which they engage with complex and potentially sensitive bioarchaeological topics.

The creation of dialogue was not only deemed important in regard to museum visitors. It was recognized that museums, in aiming to be spaces for community heritage, need to be open to and strive for the inclusion of collaborative projects and community-led initiatives. Awareness of the perspectives, wishes, and needs of different interested/affected groups was established as an integral part of making sure that knowledge mobilization projects are sustainable and able to continually adapt as new knowledge is created and the values and needs of recipient communities change. In maintaining open dialogue, theory and practice can continue to reciprocally inform each other, allowing for dynamic knowledge mobilization projects. The necessity of these collaborations within museum spaces was recognized as particularly important when addressing harms done to equity-deserving communities through museum actions. The stories that two participants shared about their museums' creation of Indigenous-guided osteology programs designed to increase capacity for bioarchaeological work within the

community (discussed in Chapter 2.1) highlight the significance of these projects in demonstrating an acknowledgement of Indigenous communities' sovereignty and improving relationships between museums and these communities. Creating these programs, guided by the wishes and values of the communities, and with the intention to build bioarchaeological knowledge capacity within the community, museums demonstrate a commitment to respect and transparency which can be integral to their attempts at building trust with descendant communities.

Lastly, museum websites were another tool established to hold a lot of potential for the success of bioarchaeological knowledge mobilization projects. These sites serve as introductory materials for an exhibit and, as such, offer an opportunity to introduce an exhibit's content and purpose, as well as begin familiarizing audiences with critical concepts that they may later build upon during their visit. By connecting visitors with important bioarchaeological terminology and concepts prior to their visit, museum websites are capable of reducing some of the expositional burden placed on the museum exhibit itself and may help in preventing museum visitor fatigue. Additionally, creating a synergistic relationship between the digital and physical presence of a bioarchaeological knowledge mobilization project can elevate these projects and their potential reach.

Tierra Ósea provides an example of this, showcasing the way that a project may utilize various mediums, such as social media, websites, and the physical museum space to provide different forms of content and widen the scope of interaction. In taking advantage of these different media, Tierra Ósea provides its audiences with different points of entry into the bioarchaeological knowledge mobilization process, while also creating a record

of their work that audiences may return to later and revisit various concepts, supporting a potentially longer-term impact.

While this research identified several elements of effective bioarchaeological knowledge mobilization, it also identified certain barriers to this process as well. An awareness of these barriers is important when establishing knowledge mobilization projects, as it may allow for the project to better address and mitigate these challenges. Current trends identified in the analysis of museum exhibit websites, suggest that this is a particular area of concern. The preference towards more minimalist website designs, which neglect to provide deeper explanations for more complex concepts in favour of aesthetics prioritize public interest over laying the foundations for deeper understandings of bioarchaeological knowledge. Additionally, website messaging that repeatedly calls on visitors to “uncover secrets” and “digitally unwrap mummies” serves to further perpetuate ideas of human remains as mysterious and strange and relies on this sensationalism to attract visitors. This aspect in particular sends messages to museum visitors that lie in direct opposition with one of the core practices of respectful bioarchaeological knowledge mobilization as identified by participants. Consequently, future bioarchaeological knowledge mobilization projects need to be cognizant of how they are balancing their need to draw visitors and funding with their educational goals and ethical guidelines.

### 5.3 Study Limitations and Future Research

As the introductory chapter of this thesis established, the process of bioarchaeological knowledge mobilization involves many different interested/affected groups. Due to the time constraints of a Master’s program and the uncertainty that the Covid-19 pandemic

presented for research projects, this study focuses on the perspectives presented by individuals from one interested/affected group (who could be reached over Zoom) of many that may play a role in establishing bioarchaeological knowledge mobilization projects. While the experiences of the museum professionals who participated in this study provide valuable insight into the bioarchaeological knowledge mobilization process and allow for foundational understandings of what the successful execution of these projects entails, additional, diverse perspectives are needed to establish a more complete picture of bioarchaeological knowledge mobilization within the museum space.

A valuable area for future research would be a deeper exploration of the diversity of opinions around bioarchaeological knowledge mobilization. Particular areas of focus for future study might be the experiences of descendant or local communities with museums and their sentiments towards bioarchaeological knowledge mobilization projects, the approaches of other professional groups within the museum space, tourist interactions with human remains in unfamiliar contexts, or a comparative review of different approaches to bioarchaeological knowledge mobilization across space and time.

Additionally, the creation of an evaluative standard by which to examine the effectiveness of bioarchaeological knowledge mobilization practices would be helpful for the purpose of comparing the findings of future studies on the subject. However, the highly contextual nature of bioarchaeological knowledge mobilization projects will likely pose a challenge to identifying broadly applicable but also structured evaluation criteria.

While the successful development of widespread evaluation criteria would be helpful in comparing various knowledge mobilization practices for their effectiveness, it is important to also recognize the benefit that more explorative research approaches, such as

this thesis, can provide to our understanding of the topic. Qualitative approaches can be useful in allowing different interested/affected groups in the knowledge mobilization process to provide detailed accounts of their experiences and expand upon their ideas. This can in turn allow for a deeper understanding of various perspectives, which is particularly relevant when discussing topics that need to be grounded in context, such as mortality, human remains and bioarchaeological research. These explorative research projects are well-suited to processes of reflection and dialogue, which may assist bioarchaeological knowledge mobilization theory to remain in alignment with its practice while responding to the developing needs and wishes of interested and/or affected communities. Periods of widespread flux that are likely to result in changes to how we approach bioarchaeological knowledge mobilization – as is currently the case in museums and bioarchaeology, especially with the addition of new NAGPRA guidelines (United States Department of the Interior, 2023) – are opportune times to utilize more exploratory approaches to establish the breadth of the matter, define the issues at play, and propose ways forward.

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## Appendices

### Appendix A. Approval documentation received from the Western Research Non-Medical Ethics Board.



**Date:** 28 July 2021

**To:** Prof. Andrew Nelson

**Project ID:** 118673

**Study Title:** Bioarchaeological Knowledge Mobilisation at the Museo Pachacamac

**Application Type:** NMREB Initial Application

**Review Type:** Delegated

**Full Board Reporting Date:** 06/Aug/2021

**Date Approval Issued:** 28/Jul/2021 16:20

**REB Approval Expiry Date:** 28/Jul/2022

Dear Prof. Andrew Nelson

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. **All other required institutional approvals and mandated training must also be obtained prior to the conduct of the study.**

**Documents Approved:**

Document Name	Document Type	Document Date	Document Version
Interview Guide - Museo Pachacamac Stakeholders	Interview Guide		
Interview Guide - External Bioarchaeologists and Museum Staff	Interview Guide		
Recruitment Email Script	Recruitment Materials	08/Jun/2021	2
Research Proposal - Bioarchaeological Knowledge Mobilisation at the Museo Pachacamac	Protocol	08/Jun/2021	2
Letter of Information_Consent	Written Consent/Assent	08/Jun/2021	2
Email Invitation to Participate in Focus Group Script	Written Consent/Assent	08/Jun/2021	1

No deviations from, or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Ms. Katelyn Harris, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

**Note:** This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).



**Date:** 19 November 2021

**To:** Prof. Andrew Nelson

**Project ID:** 118673

**Study Title:** Bioarchaeological Knowledge Mobilisation at the Museo Pachacamac

**Application Type:** NMREB Amendment Form

**Review Type:** Delegated

**Full Board Reporting Date:** 03/Dec/2021

**Date Approval Issued:** 19/Nov/2021 19:51

**REB Approval Expiry Date:** 28/Jul/2022

Dear Prof. Andrew Nelson,

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the amendment, as of the date noted above.

**Documents Approved:**

Document Name	Document Type	Document Date	Document Version
Email Invitation to Participate in Focus Group Script - Spanish Translation	Translated Documents	10/Nov/2021	1
Interview Guide - External Bioarchaeologists and Museum Staff - Spanish Translation	Translated Documents	10/Nov/2021	1
Interview Guide - Museo Pachacamac Stakeholders - Spanish Translation	Translated Documents	10/Nov/2021	1
Letter of Information Consent - Spanish Translation	Translated Documents	10/Nov/2021	1
Recruitment Email Script - Spanish Translation	Translated Documents	10/Nov/2021	1

**Documents Acknowledged:**

Document Name	Document Type	Document Date	Document Version
Attestation of the Translator - LWJ	Translation Certificate	10/Nov/2021	1

REB members involved in the research project do not participate in the review, discussion or decision.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Ms. Katelyn Harris, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

*Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).*



**Date:** 5 July 2022

**To:** Prof. Andrew Nelson

**Project ID:** 118673

**Study Title:** Bioarchaeological Knowledge Mobilisation at the Museo Pachacamac

**Application Type:** Confirming Ethics Review (CER) Form

**Review Type:** Delegated

**Date Approval Issued:** 05/Jul/2022 09:27

**REB Approval Expiry Date:** 28/Jul/2023

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Dear Prof. Andrew Nelson,

The Western University Non-Medical Research Ethics Board has reviewed this application. This study, including all currently approved documents, has been re-approved until the expiry date noted above.

REB members involved in the research project do not participate in the review, discussion or decision.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

The Office of Human Research Ethics

*Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).*



**Date:** 13 July 2023

**To:** Prof. Andrew Nelson

**Project ID:** 118673

**Study Title:** Bioarchaeological Knowledge Mobilisation at the Museo Pachacamac

**Application Type:** Continuing Ethics Review (CER) Form

**Review Type:** Delegated

**Date Approval Issued:** 13/Jul/2023 13:06

**REB Approval Expiry Date:** 28/Jul/2024

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Dear Prof. Andrew Nelson,

The Western University Non-Medical Research Ethics Board has reviewed this application. This study, including all currently approved documents, has been re-approved until the expiry date noted above.

REB members involved in the research project do not participate in the review, discussion or decision.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

**Electronically signed by:**

Mr. Joshua Hatherley, Ethics Coordinator on behalf of Dr. R. Graham, NMREB Chair 13/Jul/2023 13:06

**Reason:** I am approving this document

**Note:** This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

**Appendix B.** A non-exhaustive list of Ronald Beckett and Gerald Conlogue's knowledge mobilization projects regarding the mummies of Guanajuato.

<b>Year</b>	<b>Title</b>	<b>Contributors</b>	<b>Source</b>	<b>Format</b>
2023	The Journey into Imaging the Past, Revealing Mummies' Secrets.	J. Conlogue, C. Lowe, & E. Hamid	Tierra Ósea. Académicas sobre la Muerte at the University of Guanajuato	Teleconference presentation.
2023	The Justification for and the Methods of Research on Mummied Remains	R. Beckett	Tierra Ósea. Académicas sobre la Muerte at the University of Guanajuato	Teleconference presentation.
2015	Mummies of Guanajuato	R.G. Beckett & G. Conlogue	Mummies Around the World: an encyclopedia of mummies in history, religion, and popular culture, edited by Matt Cardin	Book chapter
2009	Accidental Mummies of Guanajuato	R. Beckett & G. Conlogue	Detroit Science Center	Scientific exhibit

2009	Las Momias	Accidental Mummies, LLC.	Detroit Science Center	Video presentation
2008	A Preliminary Radiographic and Endoscopic Examination of 21 Mummies at the “Museo de Las Momias” in Guanajuato, Mexico and the Importance of a Team Approach to Imaging Interpretation	G. Conlogue, R. Beckett, Y. Bailey, & J. Li	35th Annual North American Paleopathology Association Meeting	Poster presentation
2002	The Mummy Roadshow, Season 2, Episode 6: Muchas Mummies	Engle Brothers Media Inc.	National Geographic	Television show

## **Appendix C. Guiding Questions for the Establishment of Bioarchaeological Knowledge Mobilization Projects**

### **Determining Appropriateness**

- Is there a community need or want that could be met by the project?
- Can the information be shared in a way that various interested/affected groups would consider to be respectful?
- Is this project likely to cause harm to a community or violate a descendant community's wishes?
- Are there alternatives that may be considered more appropriate?

### **Identifying Relevant Communities**

- Who are the intended audiences of the project?
- Are there other groups who may be interested in and/or affected by the project?  
Are there any descendant communities who have a connection to these remains?
- Have all relevant interested/affected groups been invited to collaborate in ways that they consider to be appropriate?
- What challenges to collaboration do you expect and what strategies might help to mitigate these challenges?

### **Establishing Project Scope**

- What is the project's focus?

- What are the goals in terms of value creation and impact? Do these align with the needs and wishes of the intended recipient communities?
- What kinds of project outputs are conducive to the project's goals?

### **Exploring Project Narratives**

- What are the narratives that the project is trying to communicate? Do these narratives objectify human remains?
- What are the various historical, sociocultural, political, museological contexts that need to be addressed in order to create accessible, appropriate, and accurate content?
- What elements can be used to create an atmosphere that reflects the project's messaging?
- Is the project's messaging consistent across its various outputs (e.g. exhibit space, website, educational programming, etc.)? Who is responsible for ensuring this consistency exists across project outputs?

### **Examining Project Content**

- Is the language used within the exhibit accessible to the anticipated audiences of the project?
- What terminology is important to the project's focus? Are definitions provided for these terms?

- What background knowledge and experiences do you anticipate audiences may bring to the project?
- What theories and methodologies does your project build upon? What do they contribute to the project's interpretations?
- Does the project offer opportunities for audience-led exploration? Are there ways to increase and/or diversify the opportunities for interaction?
- What opportunities for dialogue exist between visitors and museum representatives?

### **Creating Sustainable Projects**

- Can feedback be easily provided for the project?
- How do you plan to implement the feedback you received? How adaptable is your project to change?
- What infrastructure is in place to promote regular evaluation of the project's value and impact?

## Curriculum Vitae

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**Post-secondary Education and Degrees:** The University of Western Ontario  
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### Conferences:

Muggridge, T., Nelson, A.J., Walsh, A. (2021, October 27-30). *Examining the Role of Museums as Knowledge Brokers in the Bioarchaeological Knowledge Mobilisation Process* [Poster presentation]. Canadian Association for Physical Anthropology Annual Conference, Hamilton, ON, Canada.

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Nelson, Andrew J., “Finding Those Once Lost: The Analysis of the Potter’s Field at Woodland Cemetery. London, ON”. (2020). Archaeology eBook Collection. 1.  
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