POSITION PAPER

Ethical Challenges in Digital Public Archaeology

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This paper focuses specifically on the ethical challenges to the field of digital archaeology and the concerns of the digital public archaeologist. It considers the notions of digital research and ethical data collection, the social and political tensions implicit in digital communications on archaeological topics, and the possible effects on ethical concerns through post-processual approaches to participatory forms of digital media. Through an unpicking of these framings of professional and public interaction with archaeology and archaeologists in digital spaces, this paper proposes several future directions for ethical research, codes of conduct, and practice in digital archaeology.

Introduction

In the Global West, our understanding of contemporary interactions, community, and participation in public life is changing rapidly, as we continue to morph and adjust to the affordances of technological developments and the transformative power of new modes of communications. As a result, the ethical frameworks for our work as digital public archaeologists need, and will continue to need, to adjust and expand to meet the ethical challenges provoked by present, as well as future, as-yet-unanticipated, technological, social and political developments. How can we ensure best ethical practices in digital public archaeologies? How can these practices be cognizant of the complexities of community relationships online and offline, the intricacy of public engagement, power structures within the interactions within and between our discipline and the wider public, and indeed, our own theoretical stances with regards to 'multi-vocality'? The range and quantity of devices, affordances and communications enabled by online and mobile technologies continue to expand at a rapid pace, unabated. Alongside the acceleration of communicative possibilities, the deeply philosophical and provocative field of digital ethics continues to expand, with a developing breadth of literature (Heider & Massanari 2012). This paper will focus specifically on the ethical concerns of the digital public archaeologist, from the perspective of someone working within an Anglophone and European context and associated practices. As Fernández (2015: 63) notes, our existing ethical codes are based on a universal assumption that everyone working in the field of archaeology possesses the same cultural experiences and values, and all support the desire to protect archaeologi-cal material and sites with the ethical stance of the professional archaeologist primarily dedicated to the preservation of archaeological knowledge above anything else. In fact, in contrast, the majority of national and international legal protections and professional archaeological organizations (and ethical codes therein) outlined below situate the role of the professional archaeologist as that of manager, gatekeeper and custodian of archaeological knowledge and heritage value. These distinctions are important to bear in mind when assessing ethical issues in digital public archaeology and these will be discussed further below. This paper will consider the notions of ethical data collection, the social and political tensions implicit in digital communications on archaeological subjects, and the effects of post-processual approaches to participatory media. Through unpicking these framings of professional and public interaction in digital spaces, this paper will propose future directions for ethical research and practice in digital public archaeology.

Locating ethical concerns in digital public archaeology

When we consider the use of digitally created data for social research in the field of archaeology, we need to acknowledge that the growth in use of digital technologies, the internet and of digital mobile devices and applications has not yet led to a correspondingly increased concern for ethical standards and behaviour within the field of digital public archaeology, despite the growing concern for digital ethics in other fields of the humanities and social sciences (Heider & Massanari 2012). The emergence of big data and the politics of fine grained surveillance techniques calls for urgent and deeper critical thinking around what such data reveal or conceal, and what we, as archaeologists, expect from our social research – critical thinking that has been almost entirely absent from discussion of

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digital social archaeologies to date. Ethical approaches to the social and structural impacts of the advent of digital public archaeology have also been almost entirely elusive. There have been numerous discussions of the ethical responsibility of archaeologists to create and maintain open access to their archaeological data and publish their work in a timely fashion (for example: Colley 2014; Moshenska & González-Ruibal 2015). However, as Huggett (2015: 6) argues the 'transformative access to archaeological data has not itself been examined in a critical manner'. Previous work on the relationship between public engagement and digital archaeology is slight – Colley's (2014) chapter on ethics and digital heritage is perhaps the only comprehensive and relatively recent assessment of the ethical aspects of public engagement with digital aspects of the archaeological process, and this paper builds on Colley's work. L. Meghan Dennis's doctoral research at the University of York will be another major work on the subject of digital ethics in archaeology and this work is timely, important and much anticipated (Dennis 2016).

The subject of digital public archaeology is a broad and increasingly complicated area of the archaeological discipline, and is one that deals with a complex range of fields, communication methods and technologies: capturing the results of fieldwork; the performance of scientific analysis and procedures using digital capture techniques; a wide variety of new and innovative methodological approaches; processing and archiving the digital preservation of material culture; and digital public engagement with archaeological sites, events, reconstructions, discussions and artefacts. If we take the definition of digital public archaeology to be 'methods for engaging the Internet-using public with archaeology through Web and mobile technologies, as well as social media applications, and the communicative process through which this engagement is mediated online' (Richardson 2013: 4), as well as the somewhat less one-sided, less 'top-down', participatory and co-produced forums and projects in which members of the public can engage with the past without the direct control of professional archaeologists, then there are multiple contexts in the use of digital and mobile communication platforms in which a nuanced understanding of ethics is required when preparing to undertake the collection of observational data. As Bonacchi and Moshenska (2015) argue:

'When we use web platforms for public archaeology, we also collect information that can be extraordinarily useful in reviewing our work. Informed by relevant theory and mixed with small data methods offline, this data deluge may help us understand where we stand and how we can improve DPA.'

However, the consideration of digital ethical standards in digital public archaeology should not simply be restricted to the relatively small number of people using these technologies as source material for academic research *about* co-production, crowdsourcing or public engagement within digital spheres. The ethical dilemmas of public *participation in* digital archaeological projects also

require careful consideration. This is true for anyone who is responsible for the creation of public-facing, or participatory projects, the promotion of digital engagement and interaction with participants, or even when observing and interacting with archaeological material produced outside the field of expert involvement, all within a framework of digital public archaeology.

Beyond the archaeological sector, the ethical guidance for digital research and information on research ethics governance is, in comparison with other areas of human subject research, also noticeably small. Organizations such as the Association of Internet Researchers (2018) and the British Psychological Society (2013) publish comprehensive guidance material, and the existing documents outline the complexity involved in research design and procedures for data collection and storage, all of which are highly contextualized. Given the interpretive nature of such guidelines, many researchers are forced to rely on their own organisational ethical codes of practice (where indeed such things exist) and the supervision of management teams or ethics committees, at least in the academic arena, who may not be made up of people who work with, and understand digital media.

The ethics of data collection from digital media

Providing a stable taxonomy of ethical dilemmas for archaeological practitioners to consider when undertaking any form of digital public engagement is confounded by technological development and human nature, but Ess (2009, 2012) highlights three key considerations:

· Privacy
· Digital surveillance
· Online abuse

As the analytical apparatus available to us has expanded to include metrics data from social media platforms and websites, metrics data have begun to play an important role in funding applications and the evaluation of archaeological projects and academic impact case studies in the neoliberal education system (Kellenberger, pers comm 2 February 2018). After all, as Stiglitz, Sen and Fitoussi (2010: xvii) note, 'in an increasingly performance-orientated society, metrics matter'. Here, ethical considerations will often depend on the research question, the method and theoretical background to the data collection, or the form of the interaction (for example, individually uploaded tweets, audio or video) or the online environment under scrutiny (for example, an online community forum, Twitter hashtag, or interactions with blog posts). All require different approaches and an appreciation of the nuanced interactions between ethical behaviour that is appropriate for research purposes within the academic field, and the subtle differences in the formats of data collection and distribution that take place beyond the academy (McKee & Porter 2009; Krotoski 2010). A growing amount of research has been undertaken (including my own) which uses or discusses data gathered from archaeology-related digital media platforms, frequently without the inclusion of any ethical statements on how

the data was gathered or what permissions were gained to use this material (for example: Bollwerk 2015; Brock & Goldstein 2015; Graham 2015; Richardson 2014b; Rocks-Macqueen 2016; Sayer & Walter 2016; Welham *et al.* 2015). As scholars, we cannot ignore the reality that, just because this data is in the public arena, it is also open and free to use, and that permission has been granted for its harvesting, analysis and dissemination. According to boyd and Crawford (2012: 672):

'… it is problematic for researchers to justify their actions as ethical simply because the data are accessible… The process of evaluating the research ethics cannot be ignored simply because the data are seemingly public.'

The collection of observational data from contemporary archaeological consumption practices, such as the use of the Internet, for instance the collection of Facebook posts, tweets, Instagram photos, observation of the use of hashtags, comments on archaeological online forums and contributions and comments submitted to discussion forums and other participatory projects, raise similar ethical questions to those with observational research and the subject of online ethnographic research or netnography (Kozinets 2010). There are serious, if overlooked, ethical concerns about privacy, for both individuals and researchers, when creators of digital projects use third party platforms for digital public archaeology, and which gather and monitor personal user data.

The surveillance of online activities is intrinsic to the business model of most of the common social media platforms. There is tension between the ability to use free communications platforms paid for through services which seek to use advertising as a revenue model, and the often complex terms and conditions, and tracking cookies, which allow user data such as preferences, search terms and keywords to be monitored and collated, and ultimately shared with third parties, for targeted advertising, which will follow the user across participating websites. The privacy implications of consumer tracking technologies and personalized advertising are controversial subjects, and there are examples of applications of the seldom-read privacy policies and data sharing agreements that have proven unethical. For example, the now-infamous Facebook mood manipulation experiment (Kramer, Guillory & Hancock 2014) failed to obtain informed consent from participants. Most archaeological organizations do not explicitly state to their visitors and users that tracking may occur in their use of these platforms. Historic England's website and social media guidelines and terms of service are particularly well considered and comprehensive (Historic England 2018). Indeed, are professional archaeologists themselves familiar with the Terms of Service of every platform and digital tool they use? Is anyone?

Despite the fact archaeologists are less concerned with digital social studies than archaeology itself, we do need to establish how we can operate ethically and effectively when obtaining permission to use data. We need to be as concerned with the safety and restrictions of the terms of service and other socially constructed limitations of our digital tools, as we are with the safety of the excavation equipment that we use, and the contexts within which we use it, and we must carry that diligent attitude over to our relationships with software, hardware, and data.

We should consider if it is feasible to contact all participants who may appear in our research for permission to use their contributions, which may be required for research case studies or evaluation, and how we can mitigate this if permissions become problematic. We also need to ensure that we can store and maintain this data in an ethical and safe manner, which is reassuring to our participants and open for researchers. Perceptions of what constitutes public and private spheres on the Internet may not correspond with the actions of any individual or community online, and as such, a strategic approach must be taken to ensure that participants are fully aware of the researchers intentions to collect their activities and use them as data. This approach to ethical data collection is enshrined in the ethical codes of practice for the medical and social sciences, including the Association of Social Anthropologists of the UK and Commonwealth Ethical Guidelines for Good Research Practice (2018); the British Psychological Society Code of Human Research Ethics (2014), the Social Research Association Ethics Guidelines (2018) or the World Medical Association Declaration of Helsinki (2013). These considerations also form part of data protection legislation in individual countries, such as the UK's Data Protection Act (1998), or at international level such as the EU Regulation on General Data Protection (Council Regulation (EU) 2016/679 2016). However, I have yet to read a peer-reviewed article from the field of digital public archaeology that explicitly mentions the ethical approval process and the approaches to data collection under these circumstances, nor one which clearly sets out how the researcher involved informed the subjects of their studies that their activities online would be monitored and harvested, and would constitute part of a piece of research, which may be publicly available. I hope that I may have overlooked something.

Online harassment

We have an ethical obligation to ensure that participation in our digital projects does not provide an avenue for personal harassment, either for professionals or participants. Online abuse is an increasingly common aspect of the landscape of communications in the digital age, exacerbated by the reproducibility, recycling and longevity of adverse Internet content. Harassment can range from being targeted due to discrimination against gender, ethnicity, disability etc.; for voicing opinions or undertaking particular activities; abuse on the subject of social status; abuse about the contents of research and publications; the continuation of abusive behaviour in offline settings, and even mistaken identity (Marwick, Blackwell & Lo 2016).

There are numerous scenarios where the use of social media for archaeological discussion and information sharing could cause harm to our audiences, our participants, as well as us as researchers. Research has conclusively demonstrated, there is a serious issue with online abuse in archaeological academia (Perry, Shipley & Osborne

2015). Public interest in archaeological research can elicit outrage as much as fascination, which is assisted in volume and velocity by the affordances of digital technologies. For example, Hill (2012) writes of 'public ridicule' by digital and traditional media in the light of contemporary archaeology project in the Forest of Dean. In an era of nationalist politics, hate speech and fake news, the online baiting and abuse of archaeological experts can have a serious impact on personal safety, given the far right's interest in evolution, ancient DNA, the medieval period and archaeological perspectives on national identity, to name a few. Committed supporters of white supremacist ideas, pseudo-archaeology, or anti-evolutionists, for example, may be both vocal and technologically adept, and unafraid of violent, abusive confrontation (for example: Derricourt 2012). Individuals and organizations working in the field of archaeology, as elsewhere, need to consider how to manage these vulnerabilities, and implement a plan to protect their staff, themselves and their expert knowledge.

Protecting participants and digital communities from online abuse, or 'trolling' is an important ethical obligation, especially in contexts where non-mainstream opinions are elicited, politically relevant archaeological sites are discussed, or controversial subjects are presented for public consumption, such as contested heritage, redevelopment on archaeological sites, or even the relationship between astronomy and megalithic alignment. We must ensure that those members of the public who choose to participate in archaeological discussions or post their own content can comment with confidence and trust that these activities will not lead to abuse. This is especially pertinent when we consider how multiple approaches to archaeological narratives, might challenge our epistemic authority (González 2016), which I will discuss further below.

Whilst these issues may not seem immediately relevant for the digital archaeological sector as a whole, there is an ethical dimension to these implications for personal privacy. We must carefully question the understanding of these issues by the end users of our projects and activities. We need to be cognizant that what may be apparent and of importance to us as academic researchers deeply engaged with theory and abstract social concern may not be either considered visible, valued or problematic to anyone else using or interacting with the data or information we make available as professional information gatekeepers. With differing levels of digital literacy in our users and participants, maintaining personal privacy and safety online and obtaining valid, clear consent for participation should be a priority. Notifying the end user of third party monitoring, the possibility of privacy violations and data tracking are part of considered and strategic approaches to such work, which, whilst challenging, are absolutely vital.

Professional codes of practice and digital public archaeology

Studies of ethics in the wider context of archaeology have increased in number over the past decade or so (Moshenska & González-Ruibal 2015), and have engaged with a wide variety of ethical behaviours and practices, as well as sub-disciplines of archaeology itself; working with indigenous and ancestral communities; collaborative practice with non-professional participants; preventing and ameliorating looting and illegal practices; the maintenance of academic standards such as publishing on time and in accessible formats; and professional gatekeeping where power and interests are at stake. As Ferris and Welch have observed elsewhere, this diversity of practice defies inclusive approaches to a definition of 'archaeology' itself, and 'likewise… the concepts of 'ethics' and 'praxis' are highly variable and certainly contested' (Ferris & Welch 2015: 72). Ethics are as Gnecco (2015: 1) points out 'reified, as if it were an anthropological universal' and are always dependent on context and historical and social background of the site, work, authors and participants in the project in hand. Gnecco also notes that ethical considerations within a public archaeology that respects and promotes multiple perspectives are often expected, if not entirely undertaken with willingness by every archaeologist.

Working in the more theoretically engaged field of public archaeology, it is too easy to assume that the acknowledgement of multiple perspectives deriving from a post-processual perspective is common throughout the profession, and that public archaeology is considered to be a requirement, if not a responsibility, of every archaeologist.

Gnecco's (2015) desire for an all-encompassing ethical public archaeology may not actually be reflected in the codes of conduct for every archaeological organization and there are considerable potential dilemmas for our membership organizations and governing bodies. The many concerns for ethical behaviour which are outlined by public archaeologists, and that of the international membership organizations that claim to represent the profession, may not always be able to recognise that there are elements to professional ethical behaviour that are unique to the field of digital applications in archaeology. This may be that the fast-changing digital environment within society and archaeology outpaces the organizational knowledge and understanding, or may be due to a lack of concern for an area of public archaeology that is not perceived to have any great seriousness, which would require a formal response. Reading through the ethical statements and codes of conduct for the main English-language professional archaeological organizations in the Global West is rather revelatory. These organizations are, on the whole, very quiet on the subject of public engagement with archaeology, and digital forms of dissemination appear more often than not only in relationship to records management and digital archiving.

The US-based Register of Professional Archaeologists Codes and Standards states that: 'Archaeology is a profession, and the privilege of professional practice requires professional morality and professional responsibility, as well as professional competence, on the part of each practitioner…' and that members 'recognize a commitment to represent Archaeology and its research results to the public in a responsible manner' (Register of Professional

Archaeologists 2018. The European Association of Archaeologists Code of Practice (2017) outlines that 'archaeologists will take active steps to inform the general public at all levels of the objectives and methods of archaeology in general and of individual projects in particular, using all the communication techniques at their disposal' and that 'adequate reports on all projects should be prepared and made accessible to the archaeological community as a whole with the minimum delay through appropriate conventional and/or electronic publishing media'. Again, this code of conduct does not reference digital forms of communications and suitable ethical behaviour and practices online. The regulations and standards of the UK-based Chartered Institute for Archaeologists speaks of 'high standards of ethical and responsible behaviour in the conduct of archaeological affairs' and that members 'shall accept the responsibility of informing the public of the purpose and results of his/her work and shall accede to reasonable requests for… information for dispersal to the general public' but is silent on responsibilities for public dissemination, let alone regulations for digital communications (Chartered Institute for Archaeologists 2014: 7).

There are three examples where archaeological organizations have made admirable efforts to include the types of issues discussed in this paper in their codes of practice and policies. The CAA (Computer Applications and Quantitative Methods in Archaeology) organisation has developed a clear ethics policy for all work pertaining to research undertaken with digital technologies and those for the use data taken from social media discussions, and an ethical advisory committee and ethics officers are now in place (CAA 2018). The Australian Archaeological Association (2018) has a series of policies that outline membership obligations and procedures that govern obligations towards indigenous communities, as well as sexual harassment and discrimination in digital communications. The organisation's code does not speak at all of the form and timeliness of public dissemination, only that 'members will disseminate the results of their work as widely as possible using plain language where appropriate.' The Principles of Archaeological Ethics of the Society for American Archaeology (2018a) have a series of 'Principles of Archaeological Ethics', which relate directly to the duty of archaeologists towards public archaeology. Principle 4 states that members should 'reach out to, and participate in cooperative efforts with others interested in the archaeological record with the aim of improving the preservation, protection, and interpretation of the record'. This very clearly includes working with 'Native Americans and other ethnic, religious, and cultural groups who find in the archaeological record important aspects of their cultural heritage'. The Society for American Archaeology also has a 'Statement on Sexual Harassment and Violence' (2018b), which includes a 'Resource Guide for Addressing Harassment and Assault and Violence', which is applicable in all archaeological settings, online and offline. The specific recommendations for behaviour and sanctions are reproduced below:

'People engage in social media for varied reasons. Activities on social media may be subject to provisions of some or all of the applicable laws discussed above. If using social media professionally (including to network with colleagues or for purposes of public outreach), SAA members are expected to approach the interface as members would a conference, understanding that there are many colleagues who are 'friends' who can see the posts and who would hold the author of the post to a high standard of professional behavior.

Before posting or commenting to a professional audience (even if mixed with non-academic 'friends'), SAA members are expected to consider this information available to the public. Nothing shared online is truly private, and the information shared may last 'forever'. Social media can serve as a megaphone, amplifying private conversations beyond the originally intended audience. When using social media, SAA members should consider whether people are likely to interpret the writing in the way it was intended. The same temperament and attitude is also expected of SAA members for email communication with colleagues (including faculty students and staff)'.

It is, at this stage, obvious that the numerous policies governing the use of digital and social media in the major archaeological organizations mentioned here have further work to do. All archaeological organizations that govern the conduct of professional archaeologists, in any context, need to update their policies to include these considerations. The ubiquity of digital communications and digital technologies within archaeological practice means that the sector cannot afford to ignore the urgent need to engage with these issues, however niche, 'un-archaeological' or ephemeral these may be perceived to be. None of the ethical statements to date cover the uses of social media data collected for research purposes, or provide any other form of ethical framework for the use of digital technologies for research. There is absent, or inadequate coverage of the use of social media in public archaeology projects by volunteers and co-production participants.

Without the recognition and consensus that these ethical issues matter from our guiding bodies, how can we hope to promote and advance digital ethics within the profession? As Perry, Shipley and Osborne (2015) have argued, 'the meaningful public impact, access and empowerment sought by the profession via the social web *are not achievable* without investment in robust protection and prevention measures'. Since, at present, only two English-language archaeological organizations have ethical statements that cover digital communications and dissemination, and these are not broad and comprehensive statements which include all three of Ess' (2012) key considerations, outlined above, personal conduct and violations of privacy are difficult to police effectively and with meaning. Organizations need to devise and implement reflective ethical policies that deal with the safe, transparent use of third party and in-house digital media both by

organisational staff and participants – and which must be reviewed and updated regularly. These must cover, at the very least, issues of personal conduct and abusive behaviour; data surveillance warnings, clear indications of the use of data and data privacy rights, and acknowledgments of responsibilities towards diversity and inclusion. Where data is collected for research, permission for ethical clearance must be gained from the relevant governing bodies and made publicly available, or an ethical statement outlining ethical research practices must be clearly made and followed. As archaeological work increasingly takes place in the commercial sector in the UK for example, the archaeologists' voice may be usurped by the needs of the developers, who may have little interest in developing ethical practices and may in fact prefer to concentrate on bottom line costs. The quest for impact within the university sector may obscure the need to consider the roles and ethical interactions with the audiences in question. Without coherent action from archaeological employers, universities, and volunteer archaeology societies, as well as our own professional bodies, unethical and potentially harmful and damaging practices in the use and abuse of online media will continue, as the use of these forms of communication becomes ubiquitous.

Ethics and multivocality

Although not all archaeologists will agree with a multivocal approach to digital public archaeology, and although we may choose to manage our research and engagement activities in ways that protect our own professional expertise, we can engage with, and support the general public to access and enjoy the digital projects we create within a robust ethical framework. The extent to which professional archaeologists and those who choose to work in and practice public-facing archaeologies, are actually actively promoting and supporting inclusive practice, rather than co-opting a semblance of community involvement to disguise decision-making by the professional archaeological hierarchy has been explored in a wider global context by a number of archaeologists (for example: Joyce 2002; Hodder 2008). The majority of those employed as archaeologists are highly trained, experienced in their fields, and are deeply invested in the creation and commodification of their professional hegemony (Pyburn 2009). The intersection of digital society, participatory media and networked communities of interest in archaeological subjects can (and should) challenge the conventional assumptions that archaeological planning and interpretation belongs to science, and processual concerns for control and policing of knowledge production. Although, as my own previous research has shown (Richardson 2014a), professional archaeological organizations would have to be open to the possibilities of 'multivocal' types of interactions actively seek out and support these kinds of online dialogues and discussions, embrace the possibilities provided by multiple perspectives on both archaeological data and archaeological narratives, all whilst remaining robust enough to respond with authority to the variety of responses this openness is likely to attract. As Walker (2014) and Perry and Beale (2015) have

discussed the 'overblown affirmative rhetoric' (Perry & Beale 2015: 156) of participatory media in the field of archaeology, especially when, as my own work has demonstrated, the opportunity to create and disseminate multiple perspectives on archaeological data, narratives and interpretations simply do not exist (Richardson 2014a).

The narratives that are created by professional archaeologists and communicated through digital technologies, or those digital projects that create content or visualizations through more community focused inclusive practices, cannot be extricated from the diverse contemporary and historical social, political and economic contexts in which archaeology is practiced. The importance of the information contained within the London Charter (2009) for example, for digital archaeological visualizations and reconstructions, need also be acknowledged here, as an example of the awareness of socio-economic awareness of digital public archaeology and the complexities of digitally mediated multivocality. Point 3.3 of the Charter indicates 'particular attention should be given to the way in which visual sources may be affected by ideological, historical, social, religious and aesthetic and other such factors' (2009: 7).

It is clear then, that the analysis of archaeological data, the creation of a historical narrative or digital visualization is a conscious choice, and as well as political act. These decisions and the challenges that emerge within these interactions could indeed challenge archaeological authority and these challenges require an ethical framework. Perhaps the simplest answer to these tensions and the complexities of opening the discipline to different controls and stakeholder participation is to embrace an ethnographic approach to situational ethics, where guidance such as that offered by the Association of Internet Researchers (2018) focuses on contextual reflexivity and negotiation within and beyond organisational contexts. The Association of Internet Researchers Recommendations from the AoIR Ethics Working Committee (2018) places emphasis on 'processes for decision-making and questions that can be applied to ever-changing technological contexts' (2) and recognizes that '…technological convergence collapses many contexts and categories in evolving and sometimes surprising ways. The internet mediates everyday life in industrialized and developing cultures, whether or not we are actively accessing the web. Thus, internet research should be considered in its broadest sense' (4). This document, and the reference guide provided within, are valuable tools for archaeological organizations, and should be included in the development of any digital media ethics policy.

Ethical concerns with the use of volunteer labour

As researchers and project creators, we work within professional structures and organizations that are often subject to intricate, precarious funding and employment arrangements. There is a complicated economic and political relationship between access to frequently underfunded digital archaeological resources and staff, and projects with explicit aims and aspirations to widen

public access and participation. Public engagement and data collection through digital crowdsourcing and citizen science is an increasingly common phenomenon in archaeology, and there are numerous successful projects that use this model (Bollwerk 2015; Bonacchi *et al.* 2015; Ridge 2014; Smith 2014). While there is not room in this paper to discuss these issues at length, we should at least pause to consider if we have caught ourselves in an ethical quandary when we create participatory digital projects, which could be perceived to replace the work of a professional or exploit the benefits of volunteer labour. These projects may also create further ethical issues related to aspects of reproducibility, since they are the accumulation of the work of multiple authors, who may or may not be aware of their intellectual property rights, if any exist. At the every least, it is ethical to publish a list of names of the participant's (should they choose) and acknowledge their contribution, or include this information in metadata, which is a far more complicated undertaking.

The arguments for and against digital participation and labour are complex, theoretically dense, often emotive, but have yet to receive due critique within the public archaeology literature, with a handful of exceptions (Walker 2014; Perry & Beale 2015; Richardson 2017). Attitudes to digital labour within the profession, if these have been expressed anywhere at all, are not at all sophisticated in their thinking when we consider the social and cultural processes and structures within which citizen science and crowdsourcing operates. If we consider the constraints to the production and consumption of archaeological information, digital objects and practices, these include larger more obvious societal inequalities such as class, education, gender, ethnicity or disability, or income inequalities, lower digital literacy, lower digital capital, cultural and social capital and differences in access to and use of digital technologies. This list is not exhaustive and as Perry and Beale (2015: 160) write, 'that virtually no practitioners have voiced any concern whatsoever about the ramifications of such practice in larger disciplinary and global political economies is disturbing'. We do not yet pay attention enough to the bigger social and political landscape within which our projects, participants and audiences are firmly embedded (Richardson & Lindgren 2017).

Conclusion: future directions for ethical digital public archaeology

In this paper, I have acknowledged that there are numerous ethical issues that are essential for practitioners and participants in the field of digital public archaeology research. If we situate the practice of digital public archaeology in sympathy with research agendas in the wider humanities and social sciences, we can create an ethical practice that will resonate beyond archaeology's parochial borders. So how can we begin to practically address these issues, and at least raise the bar on our current practices? We can lobby our professional organizations and ensure that they create and adopt clear and robust ethical statements on digital forms of public archaeology. We can ensure the commercial archaeology projects we work on deliver ethically informed digital projects. We can be aware of the economic and social implications of citizen science, and commit ourselves to fair and transparent relationships with our volunteers. We can clearly explain the importance of ethical behaviour in online interactions with archaeological information to both staff and participants in our projects. We can include an accessible code of ethics in our digital work that affirms ethical behaviour in the context of fairness, trust, privacy and neutrality. We can provide clear and honest information about how our sites and third party platforms operate, how the platforms are funded, what personal information might be shared on the proprietary platform, as well as how personal information is used by the project itself. We can ensure that contributors are aware of the potential ethical dilemmas that may occur during interaction with the digital project in hand. We can provide clear information on how contributions from the public will be monitored and removed if they violate the ethical standards of the site, why this is necessary and who will undertake this action. This list is of course, by no means exhaustive.

Within the field of archaeology as a whole, there is an ethical responsibility towards material, physical and tangible culture and objects, beyond the requirement to protect the welfare of our participants and communities. Whilst a full discussion of this perhaps philosophical and contentious dilemma is beyond the remit of this paper, we can acknowledge that digital ethics in public archaeology will be similarly complex and situational – ethical problems and dilemmas are frequently too intricate to delineate accurately, although overarching considerations can and should be codified. The protection of our partnerships and stakeholders during their interactions with our digital projects is challenging with the emergence of complex social platforms and interactions, but our primary concern should be for the welfare of our communities and practitioners, rather than our epistemological authority and participatory rhetoric. The welfare of the digital communities we create and inhabit should be at the forefront of our work, considered before our work begins, and not forgotten once our projects end. Our professional bodies, employers and university departments cannot excuse themselves from ethical concerns when human beings, living communities and socio-political tensions, are intrinsically entwined with our work in the digital field. Digital archaeology and digital engagement sits at the interface of infrastructure, socio-political concerns, communications, and technologies, as both a field of practice and a field of research. As a discipline, we need to do a lot more to enhance our critical responses to these new avenues of research and methods of communication.

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