

Augmented, Hyper-mediated, IRL

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In this article, I explore how digital data collection in the context of the Berkeley-Abiquiú Collaborative Archaeology (BACA) project works, some of the affordances of this new-ish technology, and how they articulate with analogue art practices to achieve the goals of engaged research. Thinking with affordances helps me reflect critically on what digital data recording offers our research goals. In this case, the most important aspect of using digital data recording is how it changes our relationship to time. New orientations of research time created by such technology is an opportunity to engage creatively with how archaeology can represent complexity, produce embodied experience, and share senses of place through both digital and analogue practices. As archaeologists trying to think trans-humanistically, we need to reflect critically on digital technologies to produce engaged research. This is always a shifting target. New uses reveal new possibilities, and vice versa. But newness is not what makes an impact, a difference, or changes the way we do research together; what makes a difference is the result, effects, and affects of these affordances.

Keywords: community-engaged research, digital recording, collaboration, art, archaeological survey, American Southwest

INTRODUCTION

The first time I met Kyle, he had his headphones threaded through his jacket and his oversized smartphone in his pocket. We were in the tiny adobe library at the Pueblo de Abiquiú in northern New Mexico and Kyle was one of a group of high school students interested in joining the Berkeley-Abiquiú Collaborative Archaeology (BACA) project. The purple-haired librarian let him pick songs from YouTube to play over the front-desk speakers while we sat surrounded by sci-fi novels, genealogical registers, and histories of the Genízaro Pueblo.

Later in the summer, Angel would quietly check her text messages at lunch and start whispering the latest news just out of my earshot, despite being 2400 m above sea level and kilometres away from

the plaza on a mesa. Anita's Sanrio™ Gudetama 'the Lazy Egg' iPhone case was one of many digitally animated characters that adorned her belongings. It took me two months to become Instagram friends with Andrea, where she posts selfies with enigmatic song-lyric captions. Eric keeps in touch on Facebook Messenger whenever his mother has not taken his phone away for forgetting to close the gate to the goat pen. Despite avoiding his work-issued flip phone, Bernie, one of the project's adult community partners, sends all important information through Facebook and gamely used a tablet to enter data as he worked with us during archaeological survey. Isabel, the director of the library, has a smartphone and wants to use mobile technology to further the library's mission of engaging people in the history of Abiquiú.

CASUAL CYBORGS

This group of people forms the core of our multi-year collaborative research project in the high desert of northern New Mexico. And, we are all cyborgs. By using that term, I do not mean to suggest that we are different from any other group of people in the United States today. I also do not use the term to set up this article as a tale berating youth smartphone habits or a myth about how my adult collaborators and I inventively used the high-school students' own tools to trick them into a learning experience. Rather, I want to point out that in a world where archaeologists are working with diverse communities, meeting people on their home turf, and responding to issues that matter, technology is, as Sarah Gitelman (2006) describes, 'always already new'. We are cyborgs in the sense that the boundaries between us and our digital objects and digital worlds are permeable and the differences between them are becoming less and less important (following Haraway, 1991).

I, as an archaeologist, and the people I work with do not consciously cross between digital and non-digital worlds. My collaborators in Abiquiú have email, post office boxes, text messaging, bulletin boards at the gas station, YouTube, dances in the plaza, pictures of their grandchildren on their phones as well as on their mantle-pieces, stories about the mountains, homework submitted by uploading, homework due on paper, cows to herd, goats to feed, and 400 followers on Instagram. Maybe these worlds are post-digital, maybe they are augmented, hybrid, or in some other gloriously sci-fi state but, ultimately, they just *are*. We move freely between the so-called 'real' and 'virtual' in our collaborative endeavour to use archaeological work to further heritage projects and to support land and water rights.

In the ongoing development of both engaged archaeology¹ and the use of digital technology across the discipline, the meaningful work of new technologies is often outshone by the 'newness' of the method or device. I understand how this can happen: the attention and effort it takes to understand how something works and what it can do can be huge.

The concept of affordance describes the dialectical relationship between humans and technologies and is a useful concept in thinking about the way digital archaeology is intertwined with the 'in-real-life' (IRL hereafter) practice of engaged research. In other words, affordance describes how humans (and/or nonhuman animals) and technologies (and/or objects) shape and are shaped by each other. It is any one of many interactions made possible by the materiality of both technology and human, in both material and creative capacities.

The notion of affordances was elaborated by James Gibson in *The Ecological Approach to Visual Perception* (1979) and has enjoyed vibrant debate and revision in psychology, computer science, design, new media, science and technology studies, and anthropology and archaeology (Norman, 1988; Gillings, 2012; Ingold, 2018). Gibson's theory of direct perception, from within which the concept of 'affordances' as environmental elements to which animals respond, is very much up for debate within ecological psychology (and psychology in general) (Ingold, 1992: 46; Hutchby, 2001). In this article, I build on the general principle that media anthropologists and science and technology scholars have expanded from Gibson's theory, that technological and digital objects carry with

1 I use this term to encompass a spectrum of practices sometimes also called public, community-engaged, community-initiated, activist, and socially-engaged archaeology whose goals are to collaborate with non-archaeological communities to produce better and more socially meaningful research (Colwell-Chanthaphonh & Ferguson, 2008; Liebmann & Rizvi, 2008; Atalay, 2012).

them a set of imminent materialities (affordances) that exceed their original and designed use, which often require creative human response (DeLanda, 2010: 84).

For example, media and disability scholar Mara Mills outlines how her encounter with the digitized archive of vinyl records was directed by the fact that digitized audio files do not carry with them the labels on the original LPs. This affordance (in a negative sense in this case) of digital audio required her to listen to hours of mystery sounds, and eventually led her to encounter the transfer of 'visual projective' psychological tests to audible tests for the blind (Mills, 2016; Cheek & Hagood, 2018). The immanent materialities (De Landa 1997) of both vinyl and digital audio records are made knowable through a critical reflection on the affordances of these tests and how they reflect the assumptions of the researchers more than the psychologies of the patients.

In this article, I suggest that as archaeologists trying to think trans-humanistically, we reflect critically on digital technologies to produce engaged research. This is always a shifting target. New uses reveal new affordances, and vice versa. Newness is not what makes an impact, a difference, or changes the way we do research together—what makes a difference is the result, effects, and affects of these affordances. Here, I explore how digital data collection in the context of the BACA project works, some of the affordances of this new-ish technology, and how they articulate with analogue art practices to achieve the goals of engaged research. Thinking with affordances helps me to reflect critically on what digital data recording offers to our research goals. The most important affordance of using digital data recording is how it changes our relationship to time. New orientations of research time created by such technology gifts us an opportunity to engage creatively

with how archaeology can represent complexity, produce embodied experience, and share senses of place through both digital and analogue practices.

For all seasons of the BACA project to date (2014–2017), we have used an open-source digital field recording system. The benefits and drawbacks of 'paperless' recording are discussed elsewhere, but here I outline how our use of the system allowed a new form of local, intergenerational knowledge production between myself, Abiquiú youth interns, and their families. Equally as important, our use of this system offered the time and flexibility to work with the interns to produce another kind of knowledge: a wholly analogue representation of their experiences doing fieldwork in the form of a 'zine' (hand-made magazine). Through an account of the affordances of both practices I demonstrate the effectiveness of an approach to engagement that overcomes the newness of digital technologies and gets on with the complex work of engaged research.

THE BERKELEY-ABIQUIÚ COLLABORATIVE ARCHAEOLOGY (BACA) PROJECT

The Pueblo de Abiquiú was established as a Spanish land grant in 1754 to a group of people labelled Genízaro in the Spanish *sistema de casta* (caste system). The term Genízaro identified citizens of indigenous descent who were acceptably 'hispanized' by being sold into indentured servitude in Spanish households (spoke Spanish, practiced Catholicism, etc.). The population at Abiquiú has practised a wide range of Indigenous and Spanish ways of being over the past 260 years and the racial and ethnic category of Genízaro has been a contested form of identification over the history of the land grant (Brooks, 2002; Ebright, 2006). In the last 70 years,

Abiquiú has been best known for being home to modernist painter Georgia O’Keeffe, whose house is now a tourist venue and museum as well as a major employer in the Pueblo.

The Merced del Pueblo de Abiquiú initiated an archaeological research collaboration with Dr Jun Sunseri of the University of California at Berkeley (UCB), and the Pueblo de Abiquiú Library and Cultural Center in 2014. The project grew from an interest on the part of a number of community members in adding archaeological information to the existing body of knowledge about Genízaro heritage. Archaeological information has multiple purposes for the Pueblo, including the potential for federal recognition as a tribe, supporting claims to land and water rights, youth education and engagement, and re-orienting visitors to the Pueblo towards Genízaro history away from a narrow touristic focus on O’Keeffe.

Recently, the community identified water—specifically the tradition of *acequia* irrigation—as a key socio-political issue and an urgent focus for youth reinvestment. At the same time, information about water management in the past became essential for contemporary water-rights adjudication. This set the stage for developing the research question we explored with archaeological fieldwork in the summer of 2017: what is the history of water use in Abiquiú and how does it enable understanding of Genízaro history and identity over time?

The establishment and maintenance of land grants in Spanish-Colonial Nuevo Mexico relied on a uniform set of features that signalled adherence to authorized Spanish ways of living, including the irrigation of land via *acequia* canal systems (Rivera, 1998; Arellano, 2014). As Sunseri (2014, 2018) has shown, Genízaro people in New Mexico had at their disposal both

indigenous and Spanish water management strategies. The design and construction of such infrastructure are key materials through which we can investigate the complexities of Indo-Hispano histories in the region.

A crew of nine high school interns from Abiquiú, six UCB volunteers, dozens of adult community partners, and I have documented the development of these features and associated domestic sites through fieldwalking, test trenching, soil sampling, and oral history. I am currently analysing this documentation using the concept of hydrosociality, orienting our material investigations of water infrastructure towards its enmeshment in communal social practices, values, and group identity (Rodríguez, 2006; Linton, 2010).

ALWAYS ALREADY NEW: OPEN DATA KIT AND ENGAGED ARCHAEOLOGY

To record these and other features, the BACA partnership used the paperless recording system Open Data Kit (ODK hereafter) (Figure 1), a ‘free and open-source software for collecting, managing, and using data in resource-constrained environments’ (Open Data Kit, 2018). Digital data creation is a central element in our attempt to create immediately accessible data and maintain transparency throughout all phases of the project. This is crucial to challenging historic power dynamics in which people in Abiquiú are seen as the subjects of research rather than equal partners in its creation and use. Transparency is distinct from open-source in a context where years of extractive research, journalism, and tourism development have made people understandably wary of sharing uncritically. Our data collection methods are clearly articulated and accessible to the members of the community, rather than simply being available to

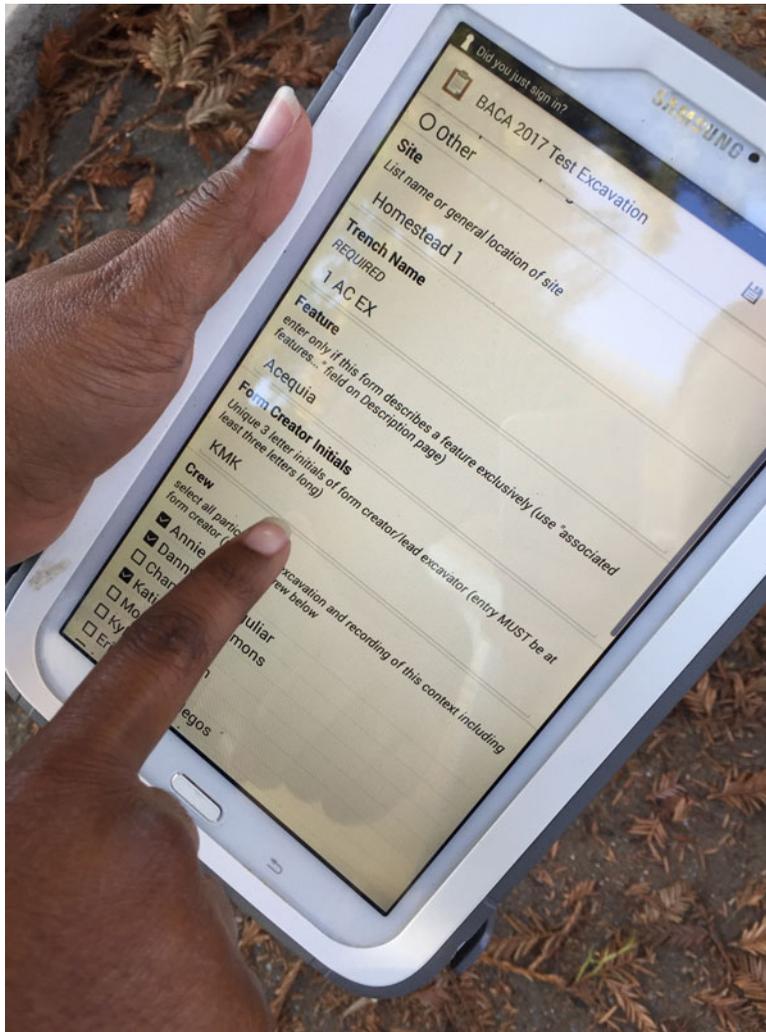


Figure 1. ODK digital recording interface on tablet.

anyone, anywhere. Using digital field recording allowed us to create a dataset over which the Abiquiúceños have ultimate control, which is transparent, and agreed on in advance. This overarching idea guides the following discussion of some affordances of paperless recording: its flexibility, affordability, spatiality, and accessibility. Each of these has an important impact on the goals and execution of engaged research.

After initial conversations with community partners, I built a digital form for

archaeological survey of historic *acequia* irrigation ditches using the ODK system. I used language we shared, both archaeological and Abiquiúceño, to describe features and sites, and arranged fields based on what we collectively thought could be useful and interesting. I could add or change fields as collaboration continued and learnt more from people who were intimately familiar with the landscape and its history and forms. Every member of the community who participated in the project could be included in the 'data

collector' field for each data point. This asserts the collaborative nature of the project in the data collection itself.

Because the whole system is open-source (i.e. free) we could build this system, make it work, and put all the tools in the hands of the community with very limited funding. Any person with an Android device can now download the app and, with the right permissions controlled by the Merced and community collaborators, download the forms, record data, and upload to the server. We used affordable, refurbished Samsung Galaxy Note tablets fitted with rugged, field-ready cases. This makes the system self-sufficient, as well as not reliant on the resources of the university once it is operational.

Another affordance of the ODK system for survey specifically is that each form is easily linked with GIS data. New features allow us to collect GPS points, lines, and polygons using the internal or external GPS units with each form. We can export these records in Keyhole Markup Language (or .kml) the most universal geographic file type. This made it possible to export files, import them into Google Earth (also a free program), and show collaborators and community members exactly where we were working and what we were finding, all while still in the field. This became especially useful as survey took us far away from the main plaza, thus making our work invisible to many (including one intern's grandmother who claimed we must just be up in the mountains picnicking all day!).

ODK records can be uploaded to a server or exported and shared in common file formats at the end of every work day. This was important for the BACA project because it suggested a real response to the issue of data transparency, accessibility, and control. Every single keystroke ends up in the control of the Abiquiú

community to whom I, as an archaeologist, and the project, as a community-based collaboration, are accountable. However, the apparent affordance of instant access can only be realized when met with on-the-ground knowledge transfer IRL.

After using the ODK digital recording system for about three weeks, I asked a few of the interns if they were interested in learning about where the data goes at the end of each day, and how to access it from the library's computers. They humoured me. They learnt that at the end of every survey day we took our tablets back to base, checked over all the forms, and uploaded them to a password protected server. This server is always accessible to them via any internet connection and appears as an in-browser spreadsheet showing all the fields and their data by the version of the form it was recorded in. We then exported the days' files from the cloud as a Comma Separated Value file (.csv) and integrated the new data into a Google Sheet on our shared Google Drive, also accessible to Abiquiúceños on any browser. Ta dah! All the data. Every day.

The interns thought this was cool, but they were not jumping out of their seats with a new understanding of the relationship between digital heritage and their personal history. They looked at me like I was slightly dense when I asked them repeatedly if they felt they could help an elder access the data. I wanted this system to work into their already habituated understanding of how information exists on the cloud—at their disposal and waiting only for their clicks and passwords. What matters here is not that the project is making data freely available, but that the system we set-up together makes these young people a resource for their community. When an elder who is less tech savvy wants to access some data, it will be these young people to whom they



Figure 2. BACA 2017 intern Anita Manzanares uses the ODK digital recording system to document an historic acequia irrigation canal.

will turn. In the moments it took to show them the ropes, they became accountable to their elders in a similar, if not more important, way than I am. The new technology of our digital recording workflow was not just a gimmick, it had a meaningful result in the way the interns related to the project.

AUGMENTED, HYPER-MEDIATED, IRL

For the nine interns of 2017, who have used BACA's ODK system the most, newness is hardly a factor (Figure 2). They have not been doing paper archaeology for decades and are not thrilled (as I was) by the streamlined possibilities of immediate data access. Nonetheless, there is an aspect of novelty. They like screens and are quick with a tablet. The system makes the project seem cooler, but also builds technological literacy that they can take with them after the season is over (an

outcome mandated by the Merced governing board).

When we talk about the potential for new technologies to give us 'more insight', make our archaeologies better, faster, and stronger, what are we really hoping for? By and large, following discussions with colleagues (Tringham, pers. comm.), the affordances of new technologies that engaged archaeologists can use are:

- The ability to represent and interrogate greater and greater complexity.
- The ability to produce, translate, or encourage embodied experience.
- The ability to document, share, and investigate senses of place.
- The potential for immersive engagement (through the above).

The affordances of ODK recording help us actualize our accountability to the community of Abiquiú and give us one magical thing: more time. That is a major impact of paperless archaeology for BACA

(and for many who have been excited about it since the possibility emerged over two decades ago). So, what do we do with all the time gained if our goals still involve an interest in complexity, embodied experiences, senses of place, and immersive engagement? We make digital recording only part of the equation. ODK itself produces a different relationship to data, which makes understanding complexity easier for a wider range of people. But in this instance, it leaves room for other practices to translate embodied experience and document a sense of place.

MAKING STUFF

A larger argument I make elsewhere (Danis, [in prep](#), see also Tringham & Danis, [in press](#)) is that engaged archaeology needs an expanded toolkit that is rigorously and critically employed. Some of these tools might include digital technologies that connect, expedite, and complicate. But some of these tools might also come from ‘analogue’ disciplines, equally concerned with senses of place and embodied experiences. For me, this means art or creative practice.

The time-scale of doing things IRL matters for archaeological attention. ODK structured our workflow such that on-paper drawing and mapping provided the slow, attentive process to materials and features that the speed of digital description belied. ODK integrated photography so that more could be done with the visual representation of things and gave us more time in the field not just to cover larger areas but also include other interpretive practices like video and sound recording, speculative sketches, and cyanotypes. Interns were intimately involved in all these aspects of data creation, and the affordances of digital recording encouraged the creation of an important kind of local, accountable knowledge.

But what paperless recording does best is cut out a whole post-field step: data entry. Instead of spending hundreds of hours turning paper forms into a spreadsheet, we began a project of reflection and making. Following a community forum in which the interns led the reporting of the summer’s archaeological activities to their friends, family, and Abiquiú’s Genízaro community, we felt the need for a way for the interns to continue their engagement with the archaeological material and its dissemination. I returned to the Abiquiú library where I first met Kyle two months after completing fieldwork and asked ‘what do you remember about our fieldwork?’ ‘Nothing,’ was one reply, quickly followed by, ‘the project ended, school started, and I did not have time to think about anything else.’ I was not shocked (though I suspected that was not entirely true). I knew their hard drives could not have been wiped clean. So, we wrote: ‘I remember ... I remember ... I remember...’ And then we dove into a stack of images from the project, printed out, IRL, not backlit, not scrollable.

Alongside team member, painter, and BACA co-conspirator Brea Weinreb, we used these reflections and images as the jumping off point for a collage project ([Figure 3](#)). In her words:

‘Outsiders’ conception of Abiquiú is largely informed by Georgia O’Keeffe’s famous abstract landscape paintings of the town. While O’Keeffe’s work is beautiful and regarded as some of the best early Modernist art, it presents a limited and problematic view of the Abiquiú landscape, mainly because the land portrayed is void of people. For this project, we created counter-maps representing alternative visions of Abiquiú’s landscape that capture the richness of Abiquiú’s community ... by collaging photographs from field work on the Land Grant over prints of

of their own bodies doing fieldwork, and by making the zine by hand, the publication is itself a trace of these students' engagement with landscape and history, joining the artefact database and GIS maps we produced as an important set of data for the project. The zine represents a significant part of archaeological research by framing the methods for data collection within the interns' personal experiences and providing an opportunity for young Abiquiúseños to tell the story in their own words. Each student received their own copy and the rest is available for sale at the Pueblo de Abiquiú Library, as well as a few Bay Area bookstores with all proceeds benefiting the library.

Using the time gained by the efficiency of digital field recording, we produced a hyper-mediated and augmented media object, informed by our process of digital data collection and reinterpreted through our embodied experience of place. Hypermediacy 'expresses itself as multiplicity' and, 'acknowledges and makes visible acts of representation' (Bolter & Grusin, 1999: 33–34). Hypermediation brings the form to the fore and makes the hands of the maker not only visible but, unavoidably, necessary. This is essential in an engaged archaeology. The many hands of collaborative work are so often erased from archaeological documentation and interpretation, even despite our attempts to make ODK digital records hold the names of their makers. The BACA zine was an attempt to counter these dynamics using the time we would have expended on data entry. The affordances of paperless recording with ODK means there is plenty of time yet to spare for meaningful archaeological interpretation in the service of Abiquiú's heritage and resource needs.

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BIOGRAPHICAL NOTES

Annie Danis is a PhD candidate in the Department of Anthropology at the University of California, Berkeley. Her research explores the integration of creative practice and community-engaged research in archaeology and anthropology with a focus on landscapes of inequality in North America. Her current research and art practice can be seen at <https://www.anniedanis.work/>.

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Réalité augmentée, hypermédia et pratique « dans la vraie vie » (in real life, IRL)

Dans cet article, l'auteur examine comment les données numériques sont acquises dans le cadre du projet Berkeley-Abiquiú Collaborative Archaeology (BACA), les potentialités (affordances) de cette technologie relativement nouvelle et son articulation avec la pratique de l'art pour atteindre les objectifs d'une recherche engagée. Une démarche incluant ces affordances permet à l'auteur de jeter un regard critique sur ce que l'enregistrement de données numériques peut contribuer à nos recherches. Dans le cas étudié, l'aspect le plus important de l'enregistrement des données numériques est qu'il change notre rapport avec le temps. La technologie nous permet de poursuivre de nouvelles orientations et offre les moyens de réfléchir de manière créative sur la complexité en archéologie, de produire des expériences incarnées et de partager un sens de l'espace à travers des pratiques tant numériques qu'analogues. En tant qu'archéologues travaillant dans un esprit transhumaniste, nous devons procéder à une réflexion critique sur les possibilités de poursuivre des recherches engagées que le numérique offre. Mais cet objectif est en mouvement constant. De nouvelles applications créent de nouvelles possibilités et vice versa. Ce n'est pas la nouveauté qui fait impression, change la donne ou modifie nos manières de collaborer ; ce qui importe, ce sont les résultats, les répercussions et les réactions que provoquent ces affordances. Translation by Madeleine Hummler

Mots-clés: recherche engagée dans les communautés, enregistrement numérique, collaboration art, prospection archéologique, sud-ouest des Etats-Unis

Erweiterte Realität, Hypermedien und Praxis „im wirklichen Leben“ (in real life, IRL)

In diesem Artikel untersuche ich die Anwendung der digitalen Datenfassung im Rahmen eines archäologischen Projektes, das Berkeley-Abiquiú Collaborative Archaeology (BACA) Projekt, und überlege über die fördernden und hemmenden Eigenschaften (Affordanz) dieser recht neuen Technologie und über ihren Zusammenhang mit der Praxis der Kunst, um die Ziele einer engagierten Forschung zu erreichen. Ein Bezug auf den Begriff der Affordanz hilft dabei, kritisch darüber nachzudenken, was die digitale Datenfassung zu unseren Forschungszielen beiträgt. Im vorliegenden Fall war die Veränderung unser Verhältnis zur Zeit der wichtigste Aspekt der Anwendung der digitalen Datenfassung. Die Technologie ermöglichte es, durch die Anwendung von digitalen und analogen Mitteln, neue Forschungsrichtungen zu folgen, über die Darstellung der Komplexität in der Archäologie kreativ zu denken, verkörperte Erlebnisse zu fördern und ein Gefühl für die Bedeutung eines Ortes zu teilen. Als Archäologen, die versuchen, transhumanistisch zu denken, müssen wir kritisch über die digitalen Technologien nachdenken und dessen Fähigkeit, engagierte Forschungsrichtungen zu entwickeln. Aber die Ziele verschieben sich immer wieder; neue Anwendungen bringen neue Möglichkeiten und umgekehrt. Es ist nicht die Neuigkeit, die etwas prägt oder eine Rolle spielt, oder die Art und Weise unserer wissenschaftlichen Zusammenarbeit verändert; der Unterschied liegt in den Ergebnissen, den Auswirkungen und den Einflüssen dieser neuen Affordanz. Translation by Madeleine Hummler

Stichworte: in der Gemeinschaft engagierte Forschung, digitale Datenfassung, Zusammenarbeit, Kunst, archäologische Prospektion, amerikanischer Südwesten