Visitor as Researcher

Making Archaeology More Accessible with Broken and Unprovenienced Objects

Jen Thum and Julia Troche

In *The Engaging Museum* (2005), Black outlines a vision of the modern museum as a place of participation and dialogue, transformed from its formerly austere self. Museums have long faced a common challenge in overcoming sociocultural barriers that have traditionally prevented them from being seen as universally accessible places. Historically, as Duncan (1995) has noted, museums are ritual spaces with an expected decorum that can be alienating to those who are not initiated into it. Museum educators know all too well that making "uninitiated" visitors feel welcome can be a large hurdle to overcome. However, educators and curators working with archaeological collections have the opportunity to present museums and their research as more transparent and visitor-

ABSTRACT

Brown University is home to several seldom-used study collections of broken and unprovenienced ancient Egyptian objects. In a new exhibition focused on the research process and the people who make it happen, these items feature as keys to the behind-the-scenes world of archaeological study. In this article, we demonstrate how educators can mobilize fragmentary artifacts as new tools for hands-on education. Each section of the exhibition focuses on an active research project that employs a modern investigative technology (e.g., XRF Analysis) and introduces visitors to researchers at all levels of study. This not only humanizes the archaeological process but also invites the viewer to participate actively in the interpretation of museum research. Two hands-on elements further cultivate an environment of accessibility to archaeology: an iPad interface updated regularly based on visitor feedback, which welcomes visitors to explore the exhibition's objects and research technologies in greater depth; and a preexisting experiential learning program, CultureLab, where visitors can handle objects from the collection and be researchers themselves. Visitor feedback suggests that openly presenting the realities of archaeological research and subsequently encouraging visitors to assume the role of researcher is a highly effective model for visitors and educators alike.

La Universidad de Brown es el hogar de varias colecciones de estudio, las cuales aún no han sido analizadas y contienen objetos fragmentarios del antiguo Egipto con procedencia desconocida. Una nueva exposición se centró en el proceso de investigación y en las personas que lo hacen posible, mediante ella, estos artefactos nos revelan lo que ocurre tras bambalinas del mundo del estudio arqueológico. En este artículo se demuestra cómo los educadores pueden movilizar artefactos fragmentarios como nuevas herramientas para la educación interactiva. Cada sección de la exposición se centra en un proyecto de investigación activa que emplea una tecnología moderna de investigación (por ejemplo la espectroscopia de rayos X), y les presenta a los visitantes investigadores arqueológicos provenientes de todos los niveles de estudio. Esto no sólo humaniza el proceso arqueológico, sino también invita al espectador a participar activamente en la interpretación de la investigación museológica. Además, dos elementos prácticos en la exposición cultivan un medio ambiente accesible a la arqueología: una interfaz de iPad actualizada periódicamente a base de retroalimentación de los visitantes, que da la bienvenida a sus usuarios a explorar los objetos de la exposición y tecnologías de investigación con mayor profundidad; y un programa preexistente del aprendizaje experiencial, CultureLab, donde los visitantes pueden manejar objetos de la colección y realizar sus propias investigaciones. El incorporar inmediatamente la opinión de los visitantes supone que presentando abiertamente las realidades de la investigación arqueológica, se anima a los visitantes a asumir el papel de investigadores, creando un modelo muy eficaz de enseñanza para ambos, visitantes y educadores.

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focused by adopting interactive and reflective strategies more commonly found in classrooms and science museums. In June 2015, we co-curated an exhibition at Brown University's Haffenreffer Museum of Anthropology, *Uncovering Ancient Egypt: Ancient Crafts, Modern Technologies*, with exactly this goal in mind. The exhibition was designed to present broken and unprovenienced objects in a way that fostered dialogue and increased visitors' sense of accessibility to archaeology and the processes "behind the scenes" of museum research.

Uncovering Ancient Egypt was also designed as a response to a perceived intellectual challenge in museology: that museums (specifically university museums) expect visitors "to come for answers, rather than for questions" (Osborne 2015:248). Broadly speaking, museum displays say far more about the "facts" than they do about the unknown. Furthermore, they rarely, if ever, discuss how researchers arrived at their interpretations in the first place. Nor do they acknowledge that much of what a label says is indeed an *interpretation* (Hubard 2007). This creates an experiential gap between visitors and researchers, where there could otherwise be many opportunities for community engagement, dialogue, and outreach. With multiple levels of visitor engagement in mind, ranging from self-guided informal gallery visits to structured educational programming, we sought to create a visitor-centered exhibition (Ballantyne and Uzzell 2011). Although "self-guided" learning presents a paradox wherein unlimited personal choice can be both liberating and confining (Allen 2004), curators can offset this effect with the use of labels whose language is designed to steer visitors in productive directions (Atkins et al. 2009). By offering additional opportunities to supplement the gallery experience with digital technologies (Tallon and Walker 2008) and educational programing, museums with archaeological collections can create a multilayered experience. Importantly, these layers of learning give visitors the chance to make their own choices about how deeply to engage with a display and whether or not to participate in the more formal programs offered. The visitor experience should remain a consideration throughout the ongoing evolution of an exhibition. This can be achieved in part through the implementation of formative, "reflective" assessment strategies inspired by classroom pedagogy (Brookfield 1995; Preskill 2011).

Uncovering Ancient Egypt took a novel approach to displaying broken and unprovenienced objects, with the aim of increasing the accessibility of archaeological research. The authors of this paper, Jen Thum and Julia Troche, were both Brown University Ph.D. students while curating this exhibition. We aimed to combine objects from three Egyptology collections at Brown in a single exhibition; many of these artifacts, however, were visually "unexceptional," and we feared that a conventional display would not stand up against nearby exhibitions, such as those at the Museum of Fine Arts, Boston. Nonetheless, we both had productive experiences researching and teaching with these collections, which provided students with a unique opportunity for experiential, hands-on learning. It was actually because of what some might see as the aesthetic and contextual limitations of the artifacts that we found them to be particularly effective as teaching tools. We recognized the educational value of these artifacts, and this inspired us to find a way to give visitors to our exhibition the same perspective. Contrary to what one might assume about the absence of provenience data, this was not a hindrance: rather, it thrust students into the role of researcher, enabling them to arrive at their own interpretations based on what was being learned in class, without fear of being "wrong." Students responded well to the sense of agency and transparency provided by this experiential learning. What does a curator do when much of the information she would typically write in an exhibition label is unknown? The answer lies in bringing the visitor "behind the scenes."

EXHIBITION COMPONENTS

Uncovering Ancient Egypt incorporated artifacts from teaching collections belonging to three institutions at Brown University: the Department of Egyptology and Assyriology, the Haffenreffer Museum of Anthropology, and the Joukowsky Institute for Archaeology and the Ancient World. These three collections are in many ways typical of the "small and idiosyncratic" university museum assemblage (Osborne 2015:253). The majority of the artifacts they contain are unprovenienced. In addition, these artifacts are mostly aesthetically unexceptional, especially when compared with the nearby collections of the Rhode Island School of Design (RISD) Museum and the Museum of Fine Arts, Boston (MFA). Despite these apparent limitations to description and display, we recognized the prevailing utility of such artifacts for research and teaching.

The Department of Egyptology and Assyriology's collection, started by a donation by Professor Emeritus Leonard Lesko and Barbara Lesko in 1999, consists of approximately 150 ancient Egyptian artifacts. The collection includes, inter alia, 30 ceramic or stone ostraca with inscriptions in Hieratic, Demotic, Greek, and Coptic; 25 divine figurines or amulets, including scarabs; 12 shabtis; two broken funerary cones; three oil lamps, numerous sherds of pottery; a sandstone relief of a divine scene highlighting the god Ptah; fragments of papyrus, cartonnage, and cloth; and a painted wooden coffin. This group of artifacts is noteworthy in its incredible range of media: glass, faience, clay, papyrus, linen, wood, stone, bronze, and ivory. Although the provenience of most of the objects remains uncertain, the majority can be dated to the Late, Ptolemaic, or Roman periods of Egyptian history (ca. 700 B.C.–330 A.D.), with the notable outlier of two Naqada Period ceramic vessels (ca. 3500–3300 B.C.).

The Haffenreffer Museum began as the private collection of Rudolf F. Haffenreffer, Jr., a brewer and entrepreneur with an interest in Native American archaeology. After Haffenreffer's death in 1955, his family donated his collection to Brown, where Professor J. Louis Giddings was tasked with heading the new museum that bore his name. Today the collection comprises more than one million objects, most of which are stored in a research facility in Bristol, Rhode Island. Objects requested for

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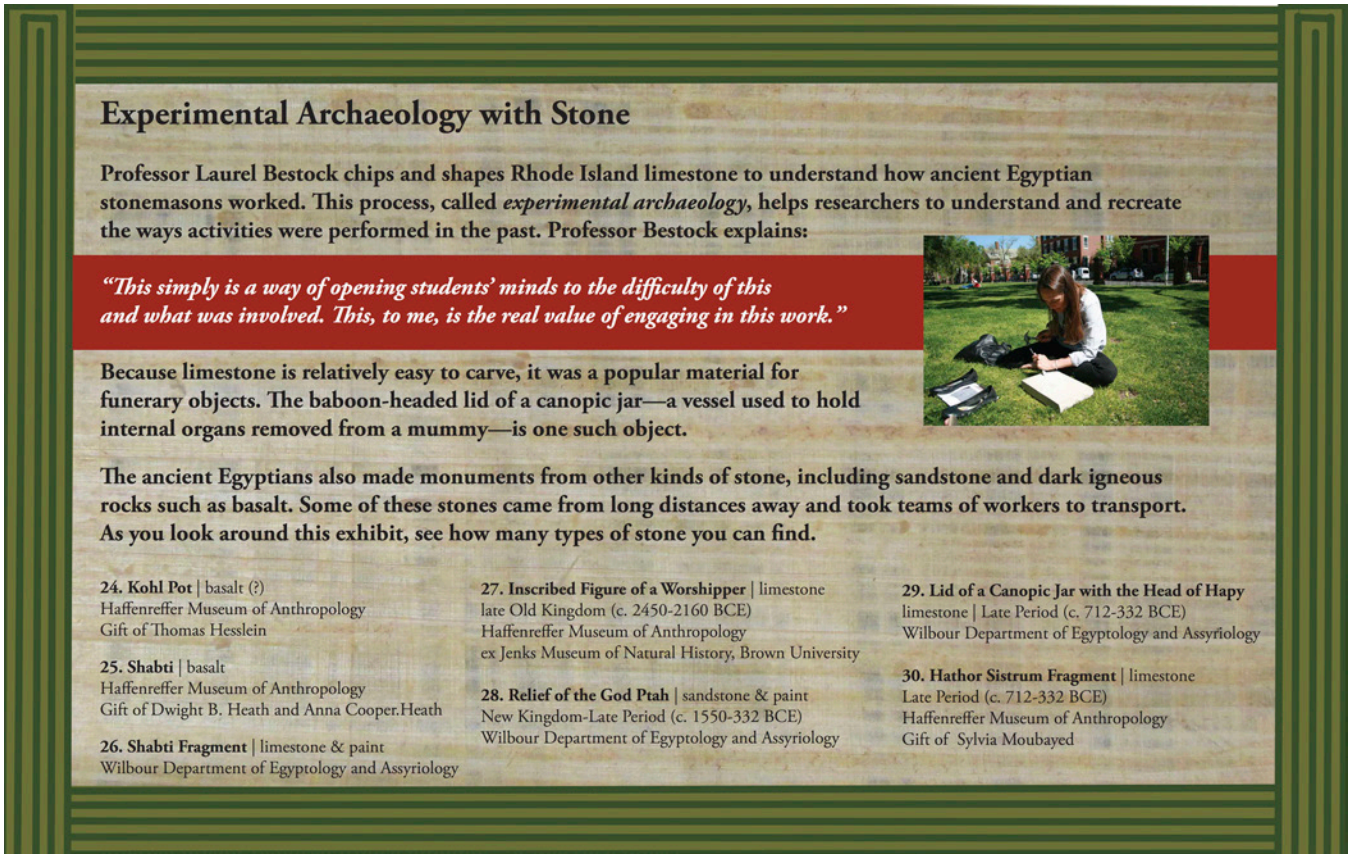


FIGURE 1. Experimental archaeology with stone label. Courtesy of Rip Gerry and the Haffenreffer Museum of Anthropology.

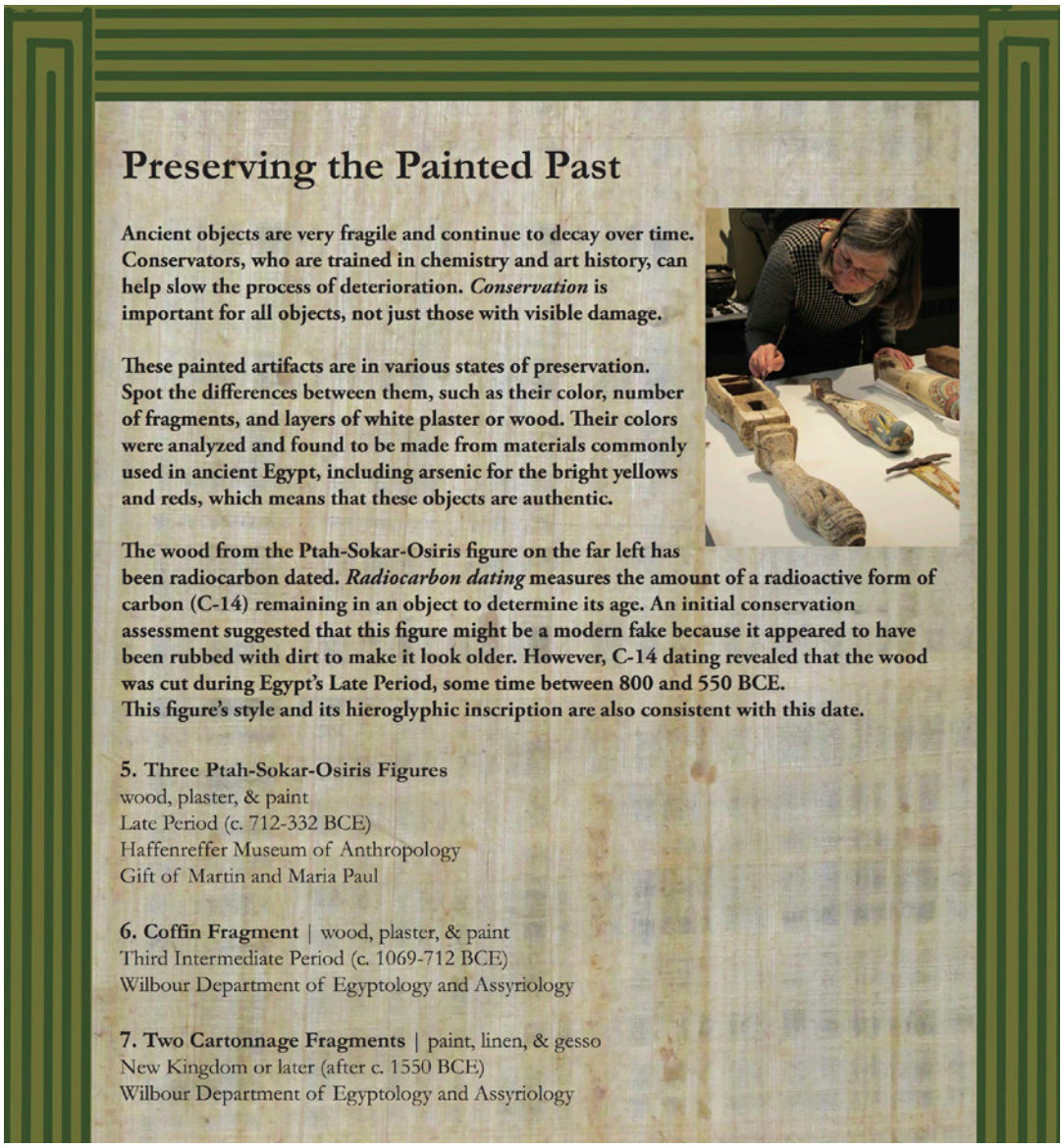
study or included in workshops and exhibitions are routinely transported to the museum's gallery space, Manning Hall, on the Brown campus. The museum houses several dozen Egyptian artifacts, including Nineteenth Dynasty faience wall tiles from the palace at Tell el-Yahudiya in the eastern Nile Delta; stone vessels and figurines; Predynastic lithic blades; and five painted wooden Ptah-Sokar-Osiris figures in varying stages of preservation. Most of the Egyptian objects were donated to the museum, though some were purchased by the university, and a handful originated as part of the collection at the Jenks Museum of Natural History, which once stood on Brown's Main Green.

The Joukowsky Institute, established in 2004, is the hub of Mediterranean archaeology at Brown. It houses its own collection of several thousand objects that are kept on the premises for study by members of the Brown community. These include more than 1,000 coins; material excavated by Brown at the site of Petra in Jordan; and Greek ceramic vessels. One of its more enigmatic holdings is an ibis mummy of uncertain provenience, which served as one of the main foci for *Uncovering Ancient Egypt*. The contents of its wrappings had long been a subject of inquiry, but we were finally able to address this question as part of the research conducted for this exhibition.

From these three collections, we created nine display zones for the exhibition. Each zone contained a group of artifacts united by the ongoing work of a single researcher, named and pictured within the label, and the modern technologies he or she employed to investigate those artifacts (Figure 1 and Figure 2). The zones were called (in the order they were experienced) "The Science of Ceramics," "Preserving the Painted Past," "Piecing the Past Together," "Dating by Style," "X-Ray Fluorescence (XRF) Analysis of Bronze Figurines," "Reflectance Transformation Imaging (RTI)," "Experimental Archaeology with Stone," "The Technology of Translation," and "Medical Imaging for Mummies." The first eight zones were arranged into a semicircle around the "Medical Imaging for Mummies" display (Figure 3 and Figure 4). A map of Egypt with a timeline and an introductory label framed the exhibition entrance, encouraging visitors to walk through the space in a clockwise direction.

The exhibition was designed with colors and textures reminiscent of ancient Egyptian art, in a space that was intimate yet open, in the sense that all zones could be seen from each other. Each zone was accompanied by a label, either in the case that contained the objects or beside it. Labels typically contained five elements: a title, which was the title of the exhibition zone, as above; a short description of the technology showcased in that zone; a red band highlighting a quote from a researcher or a description of their research; a photograph of the researcher conducting their work; and a list of the objects inside the case. We paired these displays with an iPad interface and a series of educational programs to augment the visitor experience in line with our educational goals. In the following sections, we describe these goals and use three case studies to show how we addressed and assessed them.

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Preserving the Painted Past

Ancient objects are very fragile and continue to decay over time. Conservators, who are trained in chemistry and art history, can help slow the process of deterioration. *Conservation* is important for all objects, not just those with visible damage.

These painted artifacts are in various states of preservation. Spot the differences between them, such as their color, number of fragments, and layers of white plaster or wood. Their colors were analyzed and found to be made from materials commonly used in ancient Egypt, including arsenic for the bright yellows and reds, which means that these objects are authentic.

The wood from the Ptah-Sokar-Osiris figure on the far left has been radiocarbon dated. *Radiocarbon dating* measures the amount of a radioactive form of carbon (C-14) remaining in an object to determine its age. An initial conservation assessment suggested that this figure might be a modern fake because it appeared to have been rubbed with dirt to make it look older. However, C-14 dating revealed that the wood was cut during Egypt's Late Period, some time between 800 and 550 BCE. This figure's style and its hieroglyphic inscription are also consistent with this date.

5. Three Ptah-Sokar-Osiris Figures
wood, plaster, & paint
Late Period (c. 712-332 BCE)
Haffenreffer Museum of Anthropology
Gift of Martin and Maria Paul

6. Coffin Fragment | wood, plaster, & paint
Third Intermediate Period (c. 1069-712 BCE)
Wilbour Department of Egyptology and Assyriology

7. Two Cartonnage Fragments | paint, linen, & gesso
New Kingdom or later (after c. 1550 BCE)
Wilbour Department of Egyptology and Assyriology

FIGURE 2. Preserving the painted past label. Courtesy of Rip Gerry and the Haffenreffer Museum of Anthropology.

EDUCATIONAL GOALS

Two main educational goals guided the development of *Uncovering Ancient Egypt*. Our first goal was to identify universal strategies for teaching with broken and unprovenienced museum objects. Although we possessed very minimal definitive information about most of the artifacts in Brown's collections, we felt that the absence of firm dates and places of origin should not be an impediment to their use as educational tools. Likewise, we recognized that there are many benefits to exhibiting "unattractive" and "ordinary" items, such as the ability to increase visitor understanding of an artifact's material properties and production. We therefore set out to mobilize fragmentary objects with fragmented histories as pedagogical tools.

Our second educational goal was to go beyond individual objects and increase visitors' sense of accessibility to the discipline of archaeology itself. There was one aspect that we were able to present easily for all of the objects in the exhibition: how they are being studied by archaeologists. We assumed that most visitors to the Haffenreffer do not come from archaeological backgrounds and, as a result, would have limited exposure to what researchers actually do when they study an artifact. Collections research is seldom publicly discussed once objects arrive on view in a gallery. We suggest that museums, especially those attached to major research universities, assert their position as places of research and increase their efforts to put this process on display. Doing so would be an excellent teaching opportunity, giving visitors an invitation to go behind the scenes. With our second goal in mind, we aimed to cultivate a sense of familiarity with what scholars do to investigate Egyptian material culture.

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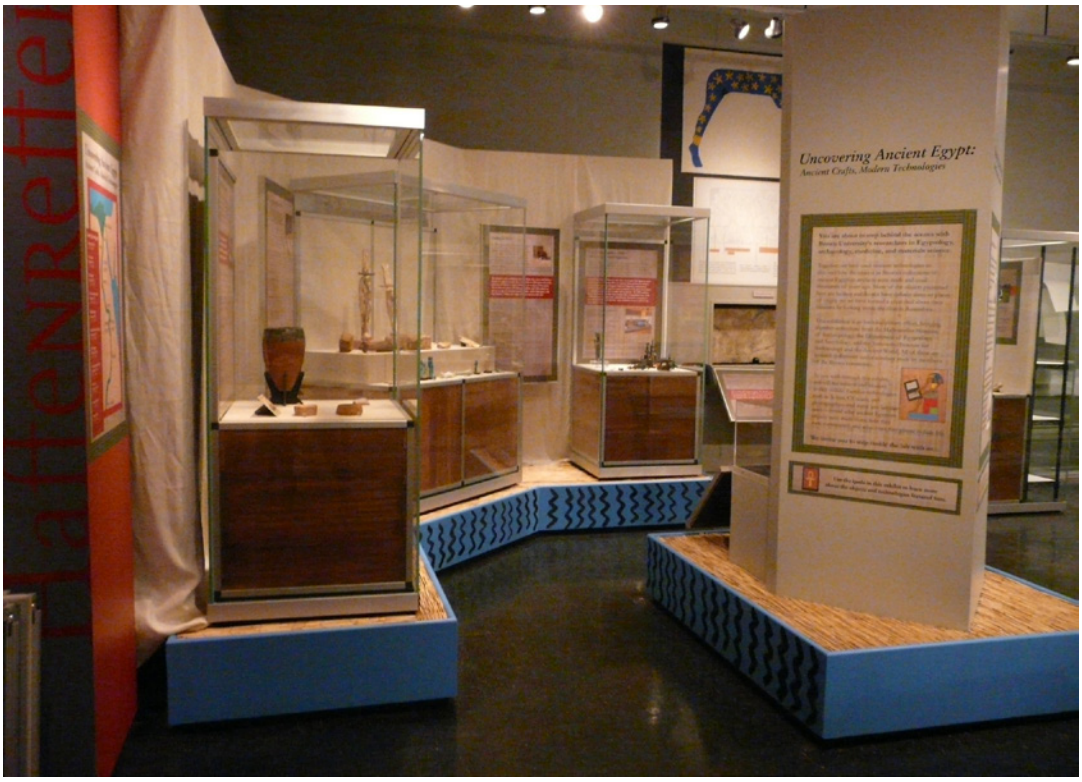


FIGURE 3. Photo of exhibition, from entrance (photograph by Jen Thum).



FIGURE 4. Photo of exhibition, facing entrance (photograph by Jen Thum).

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We decided to address both of our goals in practice by adopting three core methods. First, we highlighted the parts of objects that we found to be most interesting from a technical, as opposed to aesthetic, perspective. For some objects, that meant displaying their insides rather than their outsides to facilitate discussion of both the scientific processes behind ancient craft production and the modern methods used to investigate them. Second, we showcased and humanized current research at Brown by putting archaeological researchers "on display." By introducing visitors to actual members of Brown's archaeological community in the exhibition labels, we sought to make the museum experience less intimidating. Third, we designed the exhibition around a series of educational initiatives that continued the theme of accessibility. We invited visitors to assume the role of researcher and to form their own opinions about what ongoing study reveals. The content of these initiatives was dynamic, so that visitor feedback could be used to make small changes based on the degree to which we were meeting our educational goals.

IMPLEMENTING OUR EDUCATIONAL GOALS

We carefully chose the objects in our exhibition zones and the way they were presented within the display cases with our educational goals in mind. In this section, we outline some of the techniques we employed to address those goals through exhibition design. First, we provide some examples of how we experimented with the display of individual objects. Second, we address how we organized our displays to increase visitors' sense of accessibility to archaeological practices. Last, we provide a description of our interactive iPad interface, which helped us to achieve both of these goals.

If It's Broken, Don't Fix It

Fractured artifacts provide unique opportunities to see what would otherwise be invisible to researchers without invasive procedures—notably, material composition, processes of production, and layers of use. Archaeologists, and perhaps ceramicists in particular, have long used broken artifacts in research and have recognized their utility as objects of study. By dismissing broken objects as communicative tools in the museum setting, an educational opportunity is lost. Specifically, visitors are not offered the chance to appreciate, as researchers do, visibly "unattractive" pieces as nodes of knowledge. Moreover, museums lose out on the opportunity to show rather than tell. *Uncovering Ancient Egypt* was designed to provide investigative tools to visitors, so that they could better understand the value of these "unattractive" artifacts. Two display cases in *Uncovering Ancient Egypt* mobilized artifacts that would otherwise have been relegated to storage due to their condition: "The Science of Ceramics" and "Dating by Style."

In the "The Science of Ceramics" zone, we displayed one of our two ceramic funerary cone fragments upside-down, so that its interior was exposed (Figure 5).[2] We displayed the other cone fragment with its inscription face-up, as we did not wish to deny the utility of basic contextual information that can be gleaned from text.[3] However, the associated case label explicitly called upon visitors to acknowledge the inverted fragment. In this fragment, an outer ring of red ceramic surrounds an inner core, which remains black. A scientific explanation was provided in the label: put simply, the red color indicates oxidation. The label equipped visitors with a digestible packet of scientific knowledge for objects right in front of them and provided the tools necessary for independent scrutiny. Because we offered only a suggested explanation, and sometimes research in progress without definitive "answers," visitors were invited to draw their own interpretations on equal footing with the label-writer.

A second zone, "Dating by Style," similarly incorporated nontraditional display methods. This zone focused on the analytical tools of seriation and relative dating. The majority of the artifacts in the display case were anthropomorphic funerary figurines called shabtis. Shabtis are usually displayed facing forward because their decoration is typically located on the front of their bodies. As the label for this case explained, however, a key feature used in dating this artifact type is the presence of a back-pillar. Thus, we chose to display one of the shabtis at an angle that highlighted this diagnostic feature (Figure 6).[4]

We displayed a fragment from a second shabti at an unorthodox angle for an entirely different reason (Figure 7).[5] Upon initial observation, this fragment looked like the other shabtis that were made of faience, a glassy ceramic that was the most popular material for this type of object. However, closer examination revealed that it was made from limestone, which was glazed to look like faience. Although not referenced explicitly in the label, we displayed the shabti with its broken edge facing outward, clearly drawing attention to its cross-section, similarly to how the funerary cone was displayed in the aforementioned ceramic case. By this point in the exhibition, the visitor had already been outfitted with the interpretive knowledge that cross sections are analytically productive. The label indicated that the shabti was made of "limestone, glazed to look like faience," which would confirm a visitor's suspicion that the broken edge was meaningful.

This mode of presentation turned fragmented objects into visual triggers, reminding visitors of the investigative tools in their toolbox without the labels having to overtly draw such connections. Traditional museum displays tend to put an object's best face forward, but artifacts with fractured edges are particularly useful in presenting the sort of behind-the-scenes investigation that narrows the gap between archaeological practice and visitor experience.

Bringing Archaeology Out of the Lab

In an effort to diminish this experiential gap, our second educational goal was to make archaeology more accessible to visitors. To this end, the exhibition highlighted three methods of investigation that people could experience on their own: experimental archaeology, medical imaging, and Reflectance Transformation Imaging (RTI).

Of these three investigative techniques, experimental archaeology is perhaps the most unexpected from a visitor's perspective because the combination of archaeology and experimentation is not an immediately familiar concept. Experimental archaeology sounds like something that is done in a lab only by highly trained individuals, when in fact it is something that anyone

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FIGURE 5. Funerary cones (photograph by Jen Thum).

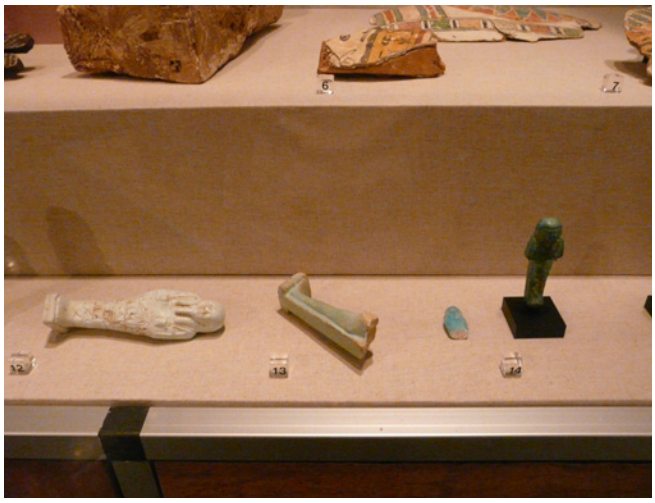


FIGURE 6. Shabti with back-pillar on display (photograph by Jen Thum).



FIGURE 7. Shabti fragment (photograph by Jen Thum).



FIGURE 8. The Joukowsky Institute's ibis mummy (photograph by Julia Troche).

can do just about anywhere. To convey this point for the zone entitled "Experimental Archaeology with Stone," we used a photograph of our researcher, Professor Laurel Bestock, working with tools that most people have in their (non-metaphorical!) toolboxes: a hammer and chisel (Figure 1). We photographed her on a sunny day in the middle of Brown's Main Green, an accessible and familiar environment. In an audio file on the nearby iPad interface (see below), Professor Bestock could be heard talking about her work over the soft background noise of chiseling. The audio file further reinforced the accessibility of experimental archaeology, which can even be done while carrying on a conversation. A major aim of this zone, then, was to give visitors a sense that archaeology isn't always something that is done far away on a controlled excavation or behind the scenes in a lab.

On the other end of this spectrum are two technologies that can be done only in highly controlled labs, but that remain accessible due to the familiarity most people have with medical imaging: X-rays and computed tomography scans, better known as CT (or CAT) scans. Both X-rays and CT scans are non-destructive methods that enable researchers to see inside an object and are, thus, particularly useful tools to investigate mummies. Indeed, one of the centerpieces of the *Uncovering Ancient Egypt* was an ibis mummy whose contents were a subject of debate for some time (Figure 8).[6] Ibises were mummified and presented as votive offerings to the god Thoth. "Fake" ibis mummies were fairly common in antiquity and, when a mummy is well-preserved, it is impossible to say with certainty whether an ibis truly lies inside the wrappings. As these birds neared extinction in Egypt, priests would routinely use only part of an ibis, other animal bones, or plants and stones to make mummies.

To see whether our mummy really contained ibis remains, we opted for nondestructive scans, which were provided by Brown's Warren Alpert Medical School at Rhode Island Hospital, specifically by Dr. John Cronan, Dr. Derek Merck, and lead CT Technologist Scott Collins (Figure 9). These scans revealed the presence of an intact ibis skeleton. We placed images from each of these scans above the mummy's display case, with the understanding that most museum visitors would be familiar with medical imag-

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FIGURE 9. Photograph of ibis mummy being scanned by computed tomography (CT), with (from left to right) Scott Collins, Julia Troche, Jen Thum, and Derek Merck. Photograph by Frank Mullin, courtesy of *Brown Alumni Magazine*.

ing (Figure 10 and Figure 11). John Filmanowicz at the School of Engineering's Design Lab kindly printed a three-dimensional model of the ibis, with its wrappings partly removed so that visitors could see "inside" the mummy, to accompany the mummy inside its display case. We demonstrated to visitors how, with the help of these technologies, something that was once invisible could be made visible and accessible.

The third investigative method that we introduced to visitors was a technique we invited them to perform themselves in the gallery: RTI, a process whereby a computer captures changes in raking light to help researchers "read" details that are inscribed on an object. The RTI display was in many ways the *pièce de résistance* of the exhibition (Figure 12). It centered on a limestone wall relief from a late Old Kingdom private tomb (Fifth or Sixth Dynasty, ca. 2494–2181 B.C.), on which Thum had already performed this technique as part of a public demonstration at the Haffenreffer Museum during Brown's Family Day in October 2013.[7] From her RTI images, Thum was able to make a digital epigraphic drawing of this otherwise illegible object, which we displayed at a 1:1 scale above it. In order to better explain the utility of raking light for archaeological studies of

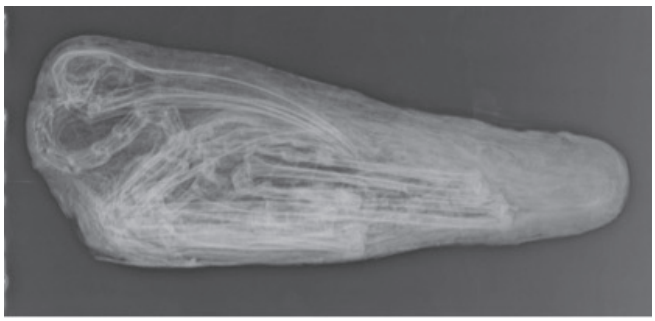


FIGURE 10. X-ray of ibis mummy. Courtesy of Scott Collins, Rhode Island Hospital.

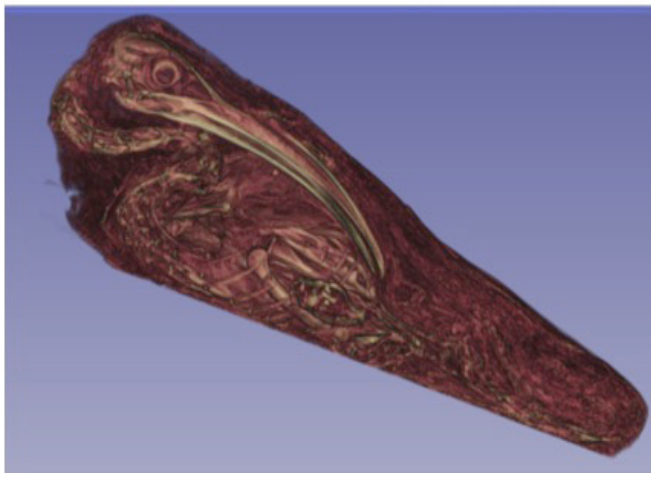


FIGURE 11. CT (computed tomography) scan of ibis mummy. Courtesy of Scott Collins, Rhode Island Hospital.

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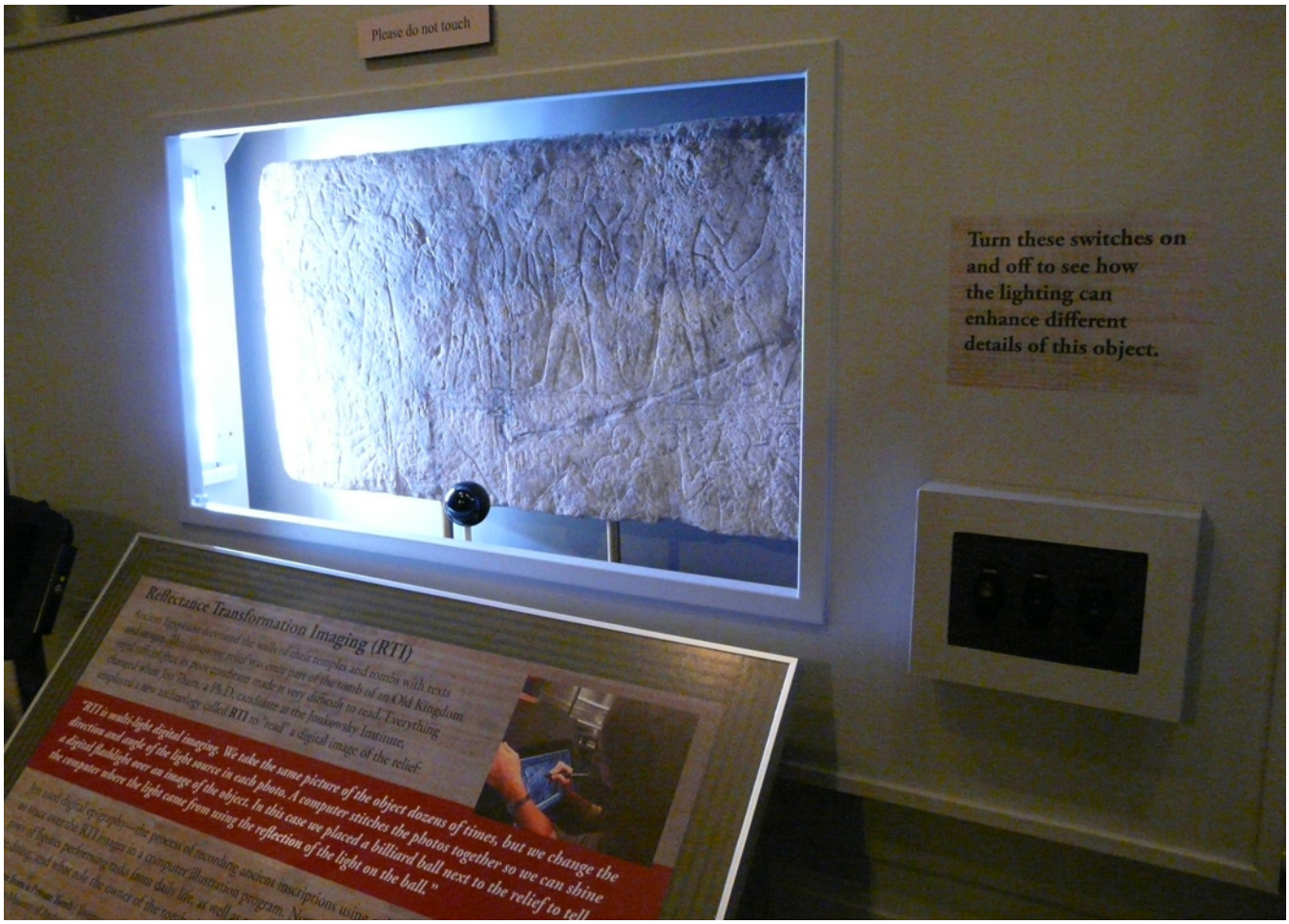


FIGURE 12. RTI (Reflectance Transformation Imaging) display (photograph by Jen Thum).

inscribed objects, we surrounded the block in a frame with inset LEDs, which were connected to three switches in a panel next to the relief. A label designed to promote investigation and dialogue (Atkins et al. 2009) encouraged visitors to experiment with the effects of different lighting combinations on the relief using the switches in this interactive display. This hands-on activity was designed to give them a better understanding of how RTI works, how epigraphic drawings are made, and why they necessarily provide different information from conventional photographs. The display encouraged visitors to conduct their own raking-light experiments on the relief, becoming researchers themselves.

By interspersing the above research technologies alongside more complicated or esoteric methods (such as XRF and radiocarbon dating), we presented archaeological research as a varied and accessible enterprise. Those with little or no archaeological background were given tools that they could use throughout the exhibit to analyze the objects as a researcher would. Those with some knowledge of archaeology, or those who were visiting the exhibition for a second or third time, were provided with additional layers of meaning through visual cues that connected the zones and a dynamic iPad interface.

Tap to Learn More

The touch-screen iPad interface that we installed in two locations in the gallery allowed visitors to navigate through supplementary content based on simple visual cues. The interface was touch-sensitive and written in simple language suitable for all ages. The "Home" screen offered visitors two choices, each of which was represented by an emblematic image: "Objects," indicated by our Hathor *bifrons* sistrum fragment, and "Technologies," indicated by a photograph of Scott Collins CT-scanning the ibis mummy (Figure 13). From each of these links, visitors could navigate to additional information about individual objects (tapping on an image of an object linked to that object) or technologies (where the link was an image of the researcher in action). Each page in the interface linked to related pages and audio files, meant to form connections within the exhibition's varied content. For example, the page about a demotic ostracon linked to another page about translation, and that translation page linked both to the pages of other textual objects in the exhibition and to a sound clip of Dr. Andreas Winkler, a postdoctoral research associate, speaking about this subject in greater depth (Figure 14). We provided at least one audio file from each researcher featured in the exhibition as a means of further humanizing archaeological research and of presenting

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FIGURE 13. iPad interface "Home" screen (image by Jen Thum).

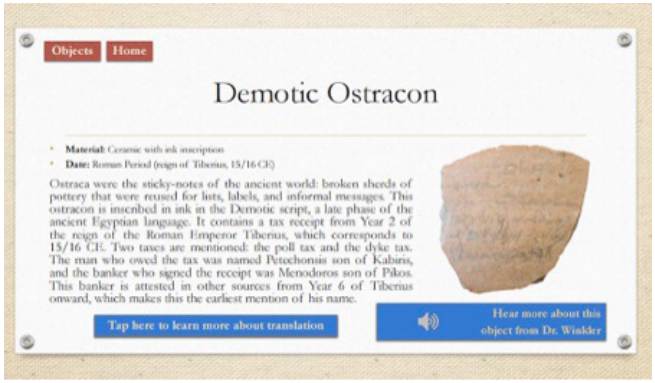


FIGURE 14. Example iPad interface page (image by Jen Thum).

researchers' work in their own words (e.g., Professor James P. Allen on papyrology, Dr. Kathryn Howley on dating shabtis by seriation, and Dr. Julia Troche on funerary cones).

The iPad interface gave us the opportunity to provide as much information as possible about the objects and technologies featured in the exhibition, while at the same time enabling visitors to jump between different layers of meaning and analysis based on their personal interests. More importantly, it helped us to avoid what Allen (2004) calls "cognitive overload" in our exhibition labels: knowing that there would always be room for more content in this digital interface, we were able to include only essential information in our displays, which meant that we could provide more opportunities for what she calls "immediate apprehendability." Inspired by reflective teaching strategies—where educators look back at the results of their work periodically to assess their practices and make improvements in the educational process (Brookfield 1995)—we updated the interface on several occasions based on user feedback, aiming to be as clear as possible and to readily provide visitors with answers to common questions. All of the iPad content continues to be accessible on the Haffenreffer website, remaining online as a "virtual museum" (http://brown.edu/go/uncoveringancientegypt). This content was available online for use by educators before planned school visits to the exhibition and by visitors who wished to return to material they saw when they visited Manning Hall. Additionally, it gave those who could not visit in person the chance to experience the exhibition at home. Supplementary educational programs also provided opportunities for further learning and helped to keep the exhibition "alive."

SUSTAINABILITY AND ASSESSMENT

Owing to our objective of curating a "living" exhibition, we made several efforts toward the sustainability and assessment of *Uncovering Ancient Egypt*. We implemented five sustainability initiatives during the tenure of this exhibition, to meet the educational needs of as many demographics as possible. The first was the presentation of our iPad content on the Haffenreffer website, which opened the exhibition up to a much wider audience and allowed it to live long past its gallery run. This is the only one of our initiatives that we consider to be "permanent." The second initiative was a monthly lecture series—"Lunch with the Scholars Who 'Uncovered Ancient Egypt'"—where the researchers highlighted in the exhibition each gave short, informal talks about their work over pizza in the gallery. Following every talk, the featured researcher answered questions from the audience about topics, ranging from archaeological theory to the finer details of the exhibition objects they had studied. The structure of these events was in keeping with the idea that curators and educators (and, in this case, also researchers) should maintain a "well-stocked pantry" of information (Hubard 2007:19), but need not always draw on everything inside of it to have meaningful conversations; that should be, and was, up to the visitors. These dialogues were free and open to the public and allowed our core message of accessibility to move well beyond the display cases. It is our hope that the opportunity to meet the researchers featured in the exhibition constituted a "transformational experience" (Soren 2009) for some of our visitors.

The third initiative was a training workshop in multisensory object-based teaching for Haffenreffer and RISD Museum docents. It was designed by three graduate students in Public Humanities, who were enrolled in a course led by RISD Museum Educator Jackie Delamatre. The docents participating in the workshop met for a series of group activities: a discussion of objects from *Uncovering Ancient Egypt* that were of personal interest to each docent; a group close-reading of an individual object; and a creative component, where participants used clay to form their own models of the object. The workshop was created to connect two different docent cohorts—the Haffenreffer group being comprised mainly of undergraduate students, and the RISD group mainly of retirees—to inspire creative and critical thinking for the general public in their respective museums. The activities were designed to provide docents with new lenses through which to tell stories and to ask questions about museum objects.

We developed our fourth and fifth sustainability initiatives around two hands-on programs that had been fixtures of the Haffenreffer Museum for some time: CultureLab, a space within the gallery where professors can request objects from the collection for hands-on study by their students, and the *Think Like an Archaeologist* program, which brings critical-thinking skills in the guise of archaeological methods to sixth-grade public school

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children (Ducady et al. 2016). CultureLab became a hub for Egypt-themed activities during the University's Family Day 2015, programming for the Brown community that coincided with Community Archaeology Day, a day of archaeological outreach activities (Thomas and Langlitz 2016). We used this event as an opportunity to inundate Manning Hall with all things Egypt: Haffenreffer docents made papyrus bookmarks, played the ancient game of *Senet* with visitors (mainly children), and offered guided tours of the exhibition. *Uncovering Ancient Egypt* was also one of three exhibitions in Manning Hall explored by Providence sixth graders for *Think Like an Archaeologist*. Students were guided by a docent through the RTI and medical imaging zones, some of whose content, such as images of the Old Kingdom relief drawing, had been presented to them previously in classroom presentations. Both of these initiatives will serve as models for future approaches combining permanent programming with temporary exhibitions at the Haffenreffer.

In order to evaluate the degree to which the exhibition and related programs met our educational goals, we employed two methods of assessment for *Uncovering Ancient Egypt*. These were designed not only to assess our initial exhibition plan but also to identify areas where immediate improvements to the user experience could be made. The main method was a general survey (Appendix 1) given on two occasions when diverse groups of visitors were present in the gallery to offer feedback: Family Day and Gallery Night Providence, a free monthly event in which guided tours are given at local museums. The survey—which consisted of open-ended questions, multiple-choice questions, and yes/no questions—asked visitors to identify their age range and their role within the university community so that we could better contextualize feedback. Visitors were then asked to identify similarities and differences between previous museum experiences and their visit to the Haffenreffer to see *Uncovering Ancient Egypt*, whether they felt that the exhibition gave them a sense that they had gone behind the scenes with the researchers we featured, and whether/how our iPad feature added to their experience. Though our sample size was relatively modest (43 responses), the results of our survey showed that visitors to *Uncovering Ancient Egypt* exited the exhibition with an interest in how museum objects are investigated before they go on display. One respondent noted that "the developers of this exhibition understand how to engage curious visitors—thank you." When asked to name the most interesting thing they had learned, visitors gave responses such as "the ability of archaeology to interact in the modern world," "using light to decode inscriptions," "how the findings are dated by style," "use of medical technology," "the technologies used by researchers and what happens behind the scenes," and "how the objects were researched—I didn't expect to learn about that but I really enjoyed it."

Our second assessment method was to evaluate the accessibility of the information in the exhibition to children by asking docents to record questions the sixth graders asked during their *Think Like an Archaeologist* gallery visits. Admittedly, this information was recorded in a more casual manner and with less oversight than in the surveys, since there was no accompanying paperwork; as a result, we are unable to provide statistics relating to this effort. However, judging from the responses the docents recorded for us, we came away with the sense that children were particularly responsive to being "introduced" to real scholars in the museum setting. Although this setting can be daunting, especially given that the Haffenreffer is the first museum many students in the program visit, we received many questions about the individual researchers and their ongoing work. These questions were presumably encouraged by the photographs embedded within the zone labels. Students also had general queries about how museums function on a practical level, such as why the objects in the display cases were numbered. In our opinion, the fact that students were unfamiliar with how objects are displayed in museum cases reaffirms the importance of *Think Like an Archaeologist*'s mission to communicate the universal right of access to cultural heritage early on, when it has the potential to remain with visitors from local schools for the rest of their lives; we are very pleased that *Uncovering Ancient Egypt* was able to contribute to this effort. Docents also received analytical questions from the students, including whether or not medical images can show signs of disease in mummies, what the texts on some of the objects say, and what certain Egyptian motifs were meant to symbolize.

These methods were just two of many possible assessment options for an exhibition like ours, but they did seem to give a representative sample of visitor experiences. We tracked visitor feedback formally with surveys, and also informally by staying in close contact with the docents and museum staff who interacted with them the most. When possible, we subsequently used this feedback to make targeted edits to the content of *Uncovering Ancient Egypt*. For example, when Curator for Programs and Education Geralyn Ducady noted that visitors were finding it difficult to imagine what an intact ceramic funerary cone looked like, we added a photograph of several complete cones to the ceramics display case, and the questions stopped. Our consideration of both formal and informal comments about the exhibition emphasizes the value of viewing visitor feedback as a reflective practice.

MOVING FORWARD

Uncovering Ancient Egypt was born as a response to an intellectual challenge: that many museums were driving down a one-way street, when they could instead have taken steps to engage visitors in dialogue. Our exhibition took such steps, utilizing the idiosyncratic Egyptological collections at Brown University to make archaeology more accessible. We hope that this exhibition will serve as a model for the development of universal strategies for dealing with broken and unprovenienced artifacts, which are particularly productive as teaching tools for archaeological practice. Furthermore, we hope that our multifaceted sustainability initiatives and the positive response to our reflective approaches will encourage other members of the museum community to reexamine common notions about the visitor experience.

Visitors to this exhibition were introduced to a variety of researchers in the Brown community, whom we "put on display" with the goal of humanizing the archaeological process. Of the 41 respondents who answered question four on our survey, 40 reported that they did in fact come away with a sense of what researchers do "behind the scenes." Showing visitors how researchers employ modern technologies to examine ancient crafts gave them the analytical tools to actively participate

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in the interpretation of artifacts. The interactive elements of the exhibition, such as the iPad interface and the RTI display, demonstrate how educators can mobilize artifacts for hands-on education, regardless of their condition. Visitor feedback suggests that openly presenting the realities of archaeological research and subsequently encouraging visitors to assume the role of researcher themselves is an effective model. Those who came to experience *Uncovering Ancient Egypt* exited the gallery with the tools to uncover ancient Egypt themselves.

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Data Availability Statement

Our iPad interface and relevant content are available via the Haffenreffer Museum website: https://www.brown.edu/research/facilities/haffenreffer-museum/index.php?q=uncovering-ancient-egypt-ancient-crafts-modern-technologies.

REFERENCES CITED

Allen, Sue
2004 Designs for Learning: Studying Science Museum Exhibits That Do More than Entertain. *Science Education Supplement: In Principle, In Practice: Perspectives on a Decade of Museum Learning Research (1994–2004)* 88(1):S17–S33.

Atkins, Leslie J., Lisanne Velez, David Goudy, and Kevin N. Dunbar
2009 The Unintended Effects of Interactive Objects and Labels in the Science Museum. *Science Education* 93(1):161–184.

Ballantyne, Roy, and David Uzzell
2011 Looking Back and Looking Forward: The Rise of the Visitor-Centered Museum. *Curator: The Museum Journal* 54(1):85–92.

Black, Graham
2005 *The Engaging Museum: Developing Museums for Visitor Involvement*. Routledge, London.

Brookfield, Stephen
1995 *Becoming a Critically Reflective Teacher*. Jossey-Bass, San Francisco.

Ducady, Geralyn, Mariani Lefas-Tetenes, Sarah Sharpe, and Miriam A. W. Rothenberg
2016 Archaeology and the Common Core: Using Objects and Methodology to Teach Twenty-First-Century Skills in Middle School. *Advances in Archaeological Practice* 4(4):517–536.

Duncan, Carol
1995 *Civilizing Rituals: Inside Public Art Museums*. Routledge, London.

Hubard, Olga M.
2007 Productive Information: Contextual Knowledge in Art Museum Education. *Art Education* 60(4):17–23.

Osborne, Robin
2015 De-contextualising and Re-contextualising: Why Mediterranean Archaeology Needs to Get out of the Trench and Back into the Museum. *Journal of Mediterranean Archaeology* 28(2):241–261.

Preskill, Hallie
2011 Museum Evaluation without Borders: Four Imperatives for Making Museum Evaluation More Relevant, Credible, and Useful. *Curator: The Museum Journal* 54(1):93–100.

Soren, Barbara J.
2009 Museum Experiences that Change Visitors. *Museum Management and Curatorship* 24(3):233–251.

Tallon, Loïc, and Kevin Walker (editors)
2008 *Digital Technologies and the Museum Experience: Handheld Guides and Other Media*. AltaMira, Lanham, Maryland.

Thomas, Ben, and Meredith Anderson Langlitz
2016 Archaeology Fairs and Community-Based Approaches to Heritage Education. *Advances in Archaeological Practice* 4(4):465–478.

NOTES

1. A proctorship is a term of service with mutual benefits to the graduate student and the University, undertaken in the place of a teaching assistantship.
2. Funerary cone of Senenmut, with inscription displayed. Date: Eighteenth Dynasty, reign of Hatshepsut (ca. 1550–1450 B.C.). Material: ceramic. Collection: Department of Egyptology & Assyriology Artifact Collection. Donors: Professor Leonard and Barbara Lesko.
3. Funerary cone of Horsaaset, with interior displayed. Date: Twenty-Sixth Dynasty (ca. 664–525 B.C.). Material: ceramic. Collection: Department of Egyptology & Assyriology Artifact Collection. Donors: Professor Leonard and Barbara Lesko.
4. Shabti with back-pillar. Date: Mid-Late period (ca. 680–525 B.C.). Material: faience. Collection: Department of Egyptology & Assyriology Artifact Collection. Donors: Professor Leonard and Barbara Lesko.
5. Shabti fragment with back-pillar. Date: second half of the Late period (ca. 680–332 B.C.). Material: limestone, glazed to look like faience. Collection: Department of Egyptology & Assyriology Artifact Collection. Donors: Professor Leonard and Barbara Lesko.
6. Ibis mummy. Date: Ptolemaic-Roman period (ca. 332 B.C.–395 A.D.). Material: bone, linen, resin. Collection: Joukowsky Institute for Archaeology and the Ancient World.
7. Scene from a private tomb. Date: Late Old Kingdom (ca. 2494–2181 B.C.). Material: limestone. Collection: Haffenreffer Museum of Anthropology. Donors: John P. Wallach and Janet S. Wallach.

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Appendix 1: *Uncovering Ancient Egypt* Visitor Survey

Age Range: 0–5 6–9 10–14 15–18 19–25 26–35 36–50 50+
I am a: Undergrad Grad Student Researcher/Post-Doc Professor Visitor to Brown

In general, when I visit museums, I go because I *want* to learn about (circle all that apply):
1) famous or high-status objects
2) objects from the everyday lives of ordinary people
3) how the objects were researched
4) how the objects were treated before they went on display
5) the people who researched the objects
6) certain period(s) in history
7) certain culture(s) or people(s)
8) I go for the general experience of being in the museum setting, not for the content.
9) other _____

When I go to museums, I usually *expect* to see exhibits about (circle all that apply):
1) famous or high-status objects
2) objects from the everyday lives of ordinary people
3) how the objects were researched
4) how the objects were treated before they went on display
5) the people who researched the objects
6) objects and information divided by period
7) objects and information divided by culture
8) other _____

What kinds of objects do you normally expect to see in an exhibit about ancient Egypt?
_____
_____
_____

Did this exhibit give you a sense of what researchers do "behind the scenes"? YES NO

The most interesting thing(s) I learned from *Uncovering Ancient Egypt* is/are:
_____
_____
_____

Before visiting *Uncovering Ancient Egypt*, had you ever used an interactive display in a museum (such as a touch-screen information panel or a hands-on activity)? YES NO

On a scale of 1 to 5, with 1 being "least helpful" and 5 being "most helpful," how helpful was the iPad interface for your experience seeing *Uncovering Egypt*?

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