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The Day of Archaeology: blogging and online archaeological communities

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This article is a case study of the Day of Archaeology project, which discusses the benefits and disadvantages of creating an online public engagement project for public archaeology. It evaluates the effectiveness of the Day of Archaeology for the creation of an online archaeological community as a resource for archaeological education and public outreach, and identifies areas of best practice for the creation and management of digital public archaeology projects.

Keywords: public archaeology, online community, digital technology, social media, social capital

Si presenta il caso studio del progetto "Day of Archaeology", discutendo vantaggi e svantaggi della creazione di un progetto online per il coinvolgimento del pubblico. Si valuta l'efficacia del "Day of Archaeology" per la creazione di una community di archeologi online a fini educativi e di valorizzazione e si identificano i punti chiave per la creazione e la gestione dei progetti digitali di archeologia.

Punti chiave: archeologia pubblica, online community, tecnologia digitale, social media, capitale sociale

1. Introduction

Howard Rheingold popularised the term "virtual community" in the early 1990s, when he defined online community as "social aggregations that emerge from the Net when enough people carry on discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace" (1993, p. 5). The dominance of social media technologies on the Internet has located these virtual communities around the use of proprietary social networking platforms such as Facebook, Twitter, or Instagram, although the situation, location and definition of

any online community is constantly evolving. Belonging to a number of these online communities, through social networking sites or forums is becoming a normal practice amongst Internet users.

As Wellman and Gulia argue, the Internet “is not a separate reality” (1999, p. 170). Mazali notes that there is a close relationship between virtual and real communities—digital communities grow from communities that have “specific and localised values, problems and identity” (2011, p. 291). For most people, the relationships performed through Internet technologies complement and enhance most real-life relationships in the real world, rather replace them completely. As Wellman (2001) acknowledges, these relationships, these networks, rather than communities in the traditional sense of the word, are most people’s current experiences of social relationships in real life, and modern communities are defined relationally not spatially. Wellman himself defines community as “networks of interpersonal ties that provide sociability, support, and information, a sense of belonging and social identity” (2001, p. 228).

The shift from group-based to individualized societies is accompanied by the emergence of flexible social ‘weak tie’ networks (Granovetter 1973) and the emerging alternative model that we call the logic of connective action applies increasingly to life in late modern societies in which formal organizations are losing their grip on individuals, and group ties are being replaced by large-scale, fluid social networks (Castells 1996). These networks can operate through the organisational processes of social media, and their logic does not require strong organisational control or the symbolic construction of a united ‘we’ (Bennett, Segerberg 2012). Online community as a communal space outside and independent from institutions can also foster dissent, cultivate new discussions, challenge identity, reconfigure social relationships, and cross hierarchies. The concept of social capital — a concept defined as the benefits and resources accumulated through social relationships and social networks — has been disseminated from sociological theory into popular parlance over the past twenty years (Portes 2000). As a sociological concept, social capital has been a subject of interest to a number of international development agencies and national bodies in the UK over the past decade, and the impact of this form of capital has been explored in a variety of diverse organisational contexts, such as the World Bank, the UK Office of National Statistics, and local government authorities. This diversity of interest is in recognition of the importance of the processes of gaining social capital, alongside human and economic capital, for economic success, community cohesion, and the wellbeing of society (Warren *et al.* 2001; Office for Public Management 2005; World Bank 2011). The term ‘social capital’ is most famously associated with the work of four academics - French so-

ciologist Pierre Bourdieu (1984; 1986), the American economist, Glen Loury (1977; 1981), the American sociologist James Coleman (1988), and American political scientist Robert Putman (1995; 2001).

Although rooted in the work of 19th century sociological thinkers such as Durkheim, de Tocqueville and Marx, the concept of social capital was first systematically explored in English translation by Pierre Bourdieu in his 1986 work *Forms of Capital*. This work focused on the benefits accrued by the individual by deliberately investing, constructing and participating in social networks and groups, as the reproduction and encouragement of inequalities and elitism (Portes 2000; Gauntlett 2011). Bourdieu later goes on to define social capital as “the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition” (Bourdieu, Wacquant 1992, p. 119). Glen Loury’s work on social capital concentrated on the inter-generational mobility and inequalities involved in race-related income and educational opportunities amongst Black Americans, although he did not expand his concept of social capital in great detail (Portes 2000, p. 46). James Coleman acknowledges his debt to Loury’s work in his broader view of social capital in his 1988 article *Social Capital in the Creation of Human Capital*. In this work, he approached the social, economic, inter-generational and regulatory aspects of the concept through an exploration of trust, social networks and the ability to organise collectively, as important functions of a successful society (Coleman 1988). Robert Putman is the foremost popular writer on the concept of social capital through his research on the decline of American civil, social and political life, most famously in his book *Bowling Alone* (Putman 1995; 2001). Putnam’s work on social capital concentrates on those elements of activity and relationships in society that can encourage togetherness and cohesion. He defines these relationships as bonding capital—strong social ties amongst groups such as neighbours and church members—and bridging capital—where members of one group connect with members of another group for advice, support or information (Siisiäinen 2000; Larsen *et al.* 2004).

The strength, and strengthening, of a strong social tie relies on shared intimacy, mutuality, emotional connection, length of time and reciprocity (Granovetter 1973; Berkowitz 1982; Marsden, Lin 1982; Wellman 1982; Weenig, Midden 1991). Granovetter (1973) wrote that the strengths of a relationship connection should be judged by the emotional intensity, shared confidences, reciprocal services and time invested that are involved in the relationship in question. A weak tie can be defined as a beneficial relationship between individuals in social circles and community groups that is based on acquaintanceship—for example, pro-

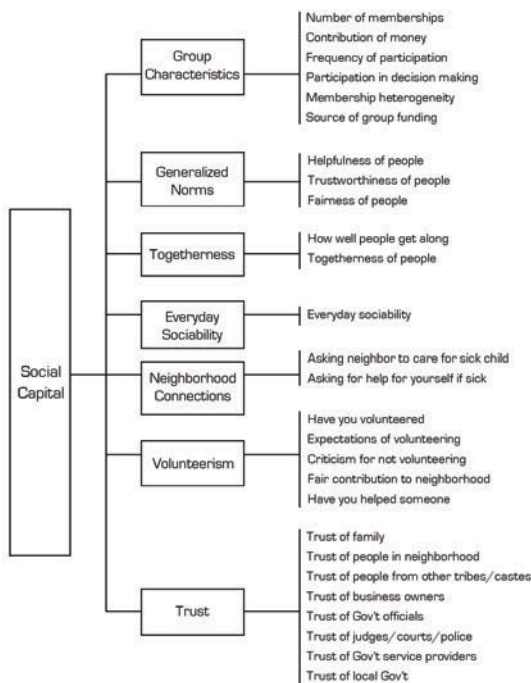


Fig. 1. The dimensions of social capital defined by Narayan and Cassidy (2001). Source: Narayan and Cassidy (2001). Reproduced with permission of SAGE Publications Copyright Clearance Centre 2014.

fessional colleagues, 'friends-of-friends', contacts with shared points of interest – which integrates the disparate groups into a wider setting – ultimately, wider society (Constant *et al.* 1996; Kavanaugh *et al.* 2005). Granovetter's work on social networks emphasised the importance of weak ties in interpersonal networks for the diffusion of influence and information (Granovetter 1973; 1982). In his work, the strength of weak ties lies in the possibility that "whatever is to be diffused can reach a larger number of people, and traverse a greater social distance, when passed through weak ties rather than strong" (1973, p. 1366).

Granovetter's concepts of weak ties within social networks have been further defined by Putnam (2001), and Narayan and Cassidy (2001) (fig. 1), as a form of social capital – what Putnam terms bridging social capital. These weak ties are not part of one's regular, close social network, but are instead relationships based on infrequent contact, and an absence of intimacy and reciprocity (Constant *et al.* 1996, p. 120). The weak tie relationship can provide sources of information, professional connections and organisational networking (Wellman 1992). These bridges between social cliques allow connections between otherwise disconnected individuals and organisations (Kavanaugh *et al.* 2005). The weak tie relationship is structured so that a wide variety of information

can be diffused and accessed through these different social networks (Granovetter 1973; Putman 2001). Weak ties may actually be advantageous for networking and community, and concentration on the strength of these ties, ignores both content and context of the relationship interaction. The flexibility of such relationships, without the commitment of a strong tie, also allows for experimentation and “impose fewer concerns regarding social conformity” (Ruef 2002, p. 430). Previous diffusion research in communication studies has demonstrated that people rarely act on information received by mass media, unless this is also reinforced by personal relationships – emphasising the importance of weak ties and bridging social capital to reinforce cohesion and collective action (Katz, Lazafield 1955; Rogers 1962; Kavanaugh *et al.* 2005).

This article will use the *Day of Archaeology*¹ project as a case study to examine the use of digital technologies for public engagement with archaeology and the benefits of social capital and weak ties for creating and maintaining online communities. The article examines the project structure and website, participation in the project, and provides information about content and organisations using the site. It explores the effectiveness of the project as a node for creating archaeological community amongst the social-media-using members of the archaeological profession. It will also identify how the project needs to develop to meet its potential as a digital public archaeology project, and will discuss the benefits and disadvantages of this form of project for public engagement. The article will also present evidence for social capital and weak ties in the archaeological community that participated in the events, and explore the assumptions, any kind of interaction and contributions will be made by a relatively small group of people who are already socially embedded and linked (Kidd 2010; Brandtzæg 2010).

2. Founding the project

The *Day of Archaeology* project is an annual, crowd-sourced global community blogging project that solicits contributions of written blog posts on a specific day each year. These blog posts describe a day in the working lives of the participating archaeologist, museum staff member or community archaeology volunteer, through written text, photos and/or video (Day of Archaeology 2013). The posts are presented on the website (fig. 2), as well as being tweeted and shared on the project's Facebook page. The first international *Day of Archaeology* was held online on

¹ www.dayofarchaeology.com (last access to all websites: April 23rd, 2014).



Fig. 2. Screenshot of the 2013 Day of Archaeology website. 15 January 2014. Retrieved from: <http://www.dayofarchaeology.com/>

29 July 2011, initially as part of the Council for British Archaeology's regular fortnight-long celebration of archaeology activities in the UK, the Festival of British Archaeology², and was subsequently repeated on 29 July 2012 and 29 July 2013 (Day of Archaeology 2013).

The project was initially conceived through a conversation on the social media platform Twitter, between fellow Ph.D. student and archaeologist, Matt Law, from Cardiff University, and myself, in March 2011. This took place after a discussion about making a contribution to the 2011 *Day in the Life of the Digital Humanities* project. The *Day in the Life of the Digital Humanities* is an annual online community participation project for people working in humanities computing, organised by the University of Alberta and designed to publicise the variety of activities that take place under the umbrella term of 'Digital Humanities' (Day in the Life of the Digital Humanities 2011). This initial conversation on Twitter eventually included other Twitter users from the archaeological community who were interested in supporting the project, and it was decided to create a day-long online event similar to the Day of Digital Humanities, which would be dedicated to collecting and collating a series of 'behind-the-scenes' blog posts solicited from people working and volunteering in any area of the discipline of archaeology. The founding project team in 2011 consisted of Andrew Dufton (Brown University), Stuart Eve (UCL/L-P: Archaeology), Matt Law (University of Cardiff), Jessica Ogden (L-P: Archaeology), Dan Pett (British Museum), and myself. The foundation of the *Day of Archaeology* as an annual event was seen by the team to be a good opportunity to undertake a born-digital public archaeology project and also to create a project that could act as a practical case study for my own research into new digital methods of community creation and public engagement with archaeology on a large scale.

² <http://www.archaeologyfestival.org.uk/>

3. Project structure

The initial structure of the *Day of Archaeology* was created through the pooled time, skills and ICT resources of the project team, and the website was established without any financial support, using free and open source software. Sponsorship 'in kind' was offered from the British Museum's department of Portable Antiquities and Treasure, L-P: Archaeology, British Archaeological Jobs & Resources (BAJR) and the UCL Centre for Digital Humanities - mainly through publicity and promotion of the event. The project had a donation of free server space thanks to the participation of the British Museum; the team members created a website, and set up a Twitter account³ as well as establishing a Facebook page⁴. A competition was launched through these social media platforms to design a logo for the project, which allowed a further "crowd-sourcing" element to be added to the endeavor (Ogden 2011). The WordPress⁵ open source content management system (CMS) was chosen to power the *Day of Archaeology* website, as it offered simple customisation, and was straightforward to use; contributors could create posts, embed media and links, or post and respond to comments without any previous experience of using a CMS, and it could give a variety of tiered access permissions to the participants, allowing some editorial control over the content. Detailed instructions on how to use the WordPress system were made available on the website before the project started, and the *Day of Archaeology* team have provided support over a period of a week before and after the project *Days*, in order to enable archaeologists who were not familiar with CMS, or needing support with authoring content via the Internet, to contribute through email or text documents⁶.

The *Day of Archaeology* project team is run as a loose collective, with between five and eight active members of the collective at any time, and there is no formal management organisation or hierarchy within the group. Membership is fluid, and the team has expanded and contracted when members are busy elsewhere. The digital competencies of the team are varied: from the initial group, five members worked in the field of digital technologies in the archaeological sector, and had experience of information technology management, programming and website development, and the remaining two were familiar with content

³ <https://twitter.com/dayofarch>

⁴ <https://www.facebook.com/thedayofarchaeology>

⁵ <http://en-gb.wordpress.org/>

⁶ How to Contribute: <http://www.dayofarchaeology.com/about-the-project/contributing-to-a-day-of-archaeology-2012/>

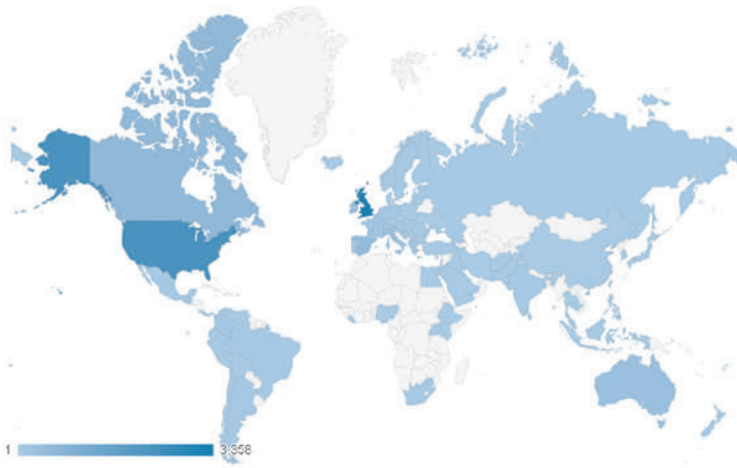


Fig 3. Traffic sources for the Day of Archaeology 2013. 16 March 2014. Retrieved from: <http://www.dayofarchaeology.com/wrapping-up-the-day-of-archaeology-2013/>

management systems and social media use. The geographic location and organisational affiliation of the team is also disparate - the majority of the 2013 team was based in the UK, with two members in the United States and one member in Spain. Three of the collective members are undertaking Ph.D. research and are full or part-time students, whilst the rest are self-employed, allied to an academic institution or working in a museum. For the first two iterations of the project, the *Day of Archaeology* contributions were made only in English, but with the addition of the Spanish-speaking member of the team, the 2013 project was able to invite content from Spanish-speakers in Europe and South America - although only twelve contributions were made directly in Spanish by nine archaeologists. There were also three contributions in French and one in Portuguese. To expand the project in future, additional language capabilities within the team would support greater participation from the Middle East, Africa and Asia and the ability to post in additional languages would enable the team to ensure that archaeological projects from all continents were represented, as well as give a greater global appeal to the project. At present, participation by archaeologists is heavily weighted towards Anglophone countries, dominated by participation from the UK, Canada and the United States, and this is reflected in the sources of traffic to the site, illustrated in fig. 3, where the darker blue areas on the map indicates a higher number of visits to the website from these countries.

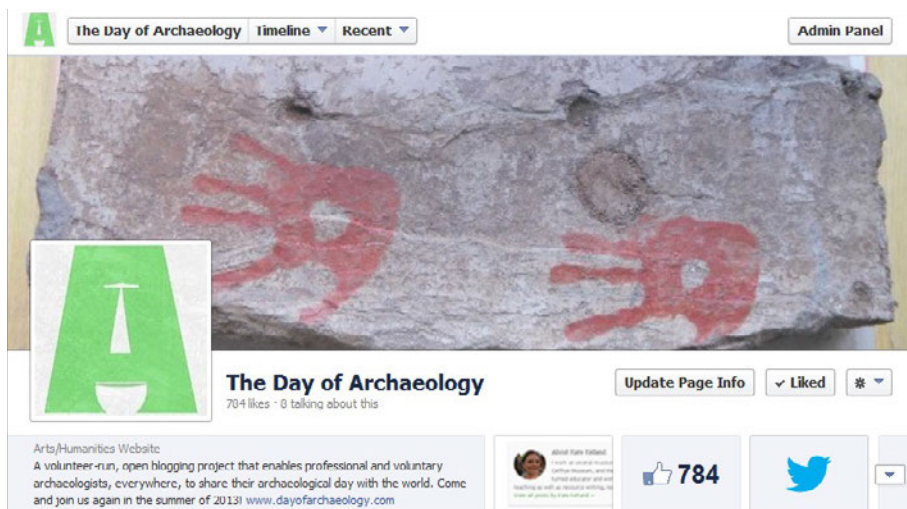


Fig. 4. Screenshot of the Day of Archaeology Facebook Page. 1 March 2014. Retrieved from: <https://www.facebook.com/thedayofarchaeology>

4. Participation in the *Day of Archaeology*

The request for contributions to the project is made on a number of online platforms as well as through traditional forms of communication. Information about the project is circulated to archaeological communities and individuals by the project team, via email, blogs, Twitter, Facebook, and emails to various archaeological subject-specific mailing lists. Whilst there will be some crossover between these accounts, as the archaeological Twitter network is still relatively small, but this represents a significant social network to leverage for retweets, links and requests for information.

The Facebook page (fig. 4) for the *Day of Archaeology* currently has 810 likes (last updated 20 January 2014). The Facebook page is linked to the *Day of Archaeology* Twitter account, and the same information is posted on each platform - information about the upcoming project, details of participation, and highlights from the current site content. The team relied heavily on online archaeological networks to promote participation in the project, and contacts were made with the Council for British Archaeology, who lead the publicity for the UK-based Festival of British Archaeology⁷.

⁷ Festival of British Archaeology website: <http://www.archaeologyfestival.org.uk/>

Year	No. of Posts	No. of images
2011	429	942
2012	343	1206
2013	329	1148

Tab. 1. Number of posts and images uploaded to the Day of Archaeology website, 2011 to 2013.

A publicity drive took place over the few months before each event, using social media contacts and networks, online archaeological forums, email lists, listings in the *British Archaeology* magazine, publicity on the British Museum and PAS websites, and by word-of-mouth to colleagues and organisational partners. As the project team includes a member of staff from the British Museum's PAS, the project was able to gain exposure through the British Museum blog and social media accounts on Twitter and Facebook, as well as featuring permanently as a link on the front page of the PAS website (Portable Antiquities Scheme 2013; D. Pett 2014, pers. comm., 12 January). Publicity posters were displayed in a small number of archaeological departments and commercial archaeology companies where the project had participants, and an editorial article was published in *British Archaeology* magazine in 2012 (Pitts 2012).

During the various iterations of the project from 2011 to 2013, there have been 1067 registered users of the *Day of Archaeology* website, with 1122 articles posted. A breakdown of the number of posts and images uploaded to the website can be found in table 1. However, a significant number of the posts are badly geo-referenced, so mapping the posts was a haphazard exercise, and the contributions were also in need of metadata additions, such as categories and tags, so it was reliant on the *Day of Archaeology* team to add this information, which created extra work when editing and publishing the posts. A third party tool using the semantic tagging platform OpenCalais⁸ provided by Thomson Reuters was used to suggest tags and extra metadata for each post automatically. A large number of images were uploaded to the site. 3,296 have been submitted since 2011 and, with a few exceptions where copyright was maintained, are licensed under Creative Commons CC BY-SA 3.0, the majority of these images are available to anyone to reuse, even for use within a commercial context. There have been 321 comments and 261 pingbacks, or links to other blog posts on the *Day of Archaeology* website, or on other blog sites, were received over the three years.

⁸ <http://www.opencalais.com/>

When the project was established, it was hoped that by harnessing public attention for this one single day, those involved in archaeology would be able to showcase the many different activities, contexts and occupations that make up the archaeological sector worldwide. The range of archaeological occupations within the discipline is very broad, and the contributors to the project have been drawn from a wide variety of representations of the archaeological profession. During the lifecycle of the project, participants have contributed from organisations throughout the United Kingdom and Ireland, almost every European Union country, Asia, North America, Australia, the South Pacific, the Middle East, Africa and South America.

Organisational participants have included professional archaeologists from organisations such as universities, commercial archaeology companies, educational charities and museums - large UK-based organisations have included British institutions such as the British Museum⁹, the Royal Commission on Ancient Monuments for Scotland¹⁰ and English Heritage¹¹.

5. Exploring use and contributions

Participants have taken a number of approaches to the presentation of their contributions to the *Day of Archaeology* over the three years of its existence. Many of the posts are presented in a diary format, some are image-only, and there have been a number of films made especially for the project. This section will briefly examine three different uses of the *Day of Archaeology* by both individual contributors and archaeological organisations, and will explore how often they posted, what kind of content they contained, and how this information has been used.

The staff of the London Archaeological Archive and Research Centre (LAARC) has participated in all three iterations of the *Day of Archaeology* project. In 2011, only one post was made, by a single member of the LAARC staff, which mentioned the day's activities of the Research Centre, and included photographs of the staff and volunteers at work¹². In 2012 and 2013, the LAARC staff expanded their contributions to the

⁹ For example: <http://www.dayofarchaeology.com/a-day-in-ceramics-glass-and-metals-conservation-at-the-british-museum-29th-july-2011/>

¹⁰ For example: <http://www.dayofarchaeology.com/rcahms-day-of-archaeology-2013-myarchaeology/>

¹¹ For example: <http://www.dayofarchaeology.com/a-day-in-the-life-of-a-heritage-information-partnerships-supervisor/>

¹² <http://www.dayofarchaeology.com/at-the-laarc/>

Day of Archaeology, and undertook a novel exercise entitled "LAARC Lottery". Each hour of the *Day* itself, between 12 until 5pm, the LAARC staff encouraged the public to explore their hundreds of thousands of archaeological finds interactively and at random. This was facilitated through the use of Twitter, using the hashtags #dayofarch¹³ and #LAARC¹⁴, or through the use of the comments section of the *Day of Archaeology* website. Every hour offered the possibility of exploring a new area of the LAARC, broken down into five major areas of their collections; general finds, registered finds, metal, textile and environmental finds. The staff asked participants to suggest a random number, depending on the number of shelves in the archival area in questions, and then the LAARC staff visited the relevant shelf number, and photographed and over the day, wrote a series of six blog posts about the objects found in each collection area¹⁵.

There has been a series of documentaries from the organisation *NGO Archaeologia* (who are working in Macedonia) and they produced a programme of national activities to promote archaeology throughout the country on the *Day of Archaeology* in 2012 and 2013 (Ivanovic 2013). The events in Macedonia were funded by the National Cultural Programme for 2013 of the Macedonian Ministry of Culture, and were supported by the Museum of Macedonia, Museum of the city of Vinica and the Student Archaeological Association 'Axios'¹⁶.

The posts from 2011 to 2013, have to date demonstrated a wide variety of activities and occupations in the archaeological sector; archaeologists searching for sites by kayak in Newfoundland, Canada¹⁷; museum conservators conserving archaeological models from the archives at Salisbury and South Wiltshire Museum in the UK¹⁸; postgraduate students working on a laboratory analysis of Aztec artefacts in Toluca, Mexico¹⁹; reports from an archaeological tour guiding company in Zimbabwe²⁰; community archaeology and graveyard recording in western Ireland²¹, and field archaeologists undertaking excavations in Tokelau in the

¹³ <https://twitter.com/search?q=%23dayofarch&src=typd&f=realtime>

¹⁴ <https://twitter.com/search?q=%23LAARC&src=typd>

¹⁵ <http://www.dayofarchaeology.com/author/afetherston/>, <http://www.dayofarchaeology.com/author/acorsini/>

¹⁶ <http://www.dayofarchaeology.com/a-day-with-macedonian-archaeology-2013/>

¹⁷ <http://www.dayofarchaeology.com/searching-for-archaeological-sites-on-oderin-island-newfoundland-canada/>

¹⁸ <http://www.dayofarchaeology.com/the-pitt-rivers-archaeological-models/>

¹⁹ <http://www.dayofarchaeology.com/aztec-archaeology-at-calixtlahuaca-or-not-one-of-my-better-days/>

²⁰ <http://www.dayofarchaeology.com/zimbabwean-guidings/>

²¹ <http://www.dayofarchaeology.com/historic-graveyards-and-community-archaeology-in-ireland/>

South Pacific²². Individuals who have contributed to the *Day* include conservators, field archaeologists working on excavations, underwater archaeologists exploring maritime archaeology, and archaeological surveyors undertaking geophysical prospection. The project participants have freely contributed blog posts, videos and images, and there have also been contributions by a wide variety of non-professionals, such as American metal detector hobbyists²³, community archaeology volunteers working on the Thames foreshore in London²⁴, Ph.D. archaeology students²⁵ and voluntary archaeology groups, such as the Waveney Valley Community Archaeology Group²⁶. The variety of these contributions demonstrate the complexity, excitement and frustrations that “all archaeologists, whether professional or amateur, student or ‘armchair enthusiast’, must deal with on a daily basis” (Day of Archaeology 2013).

6. The *Day of Archaeology* as archaeological community

As Hansen *et al.* (2011) have noted in their exploration of social media network analysis, “collections of individual social media contributions can create vast, often beneficial, yet complex social institutions”. Bought together, the individual contributions from archaeologists participating in the *Day of Archaeology* has created a valuable project for both public engagement with archaeological topics in the present and future social history research of the archaeological discipline (Jeffrey 2012). The challenge is to understand how these individual contributions to the *Day of Archaeology* project are situated within the context of the collective properties of the project itself, and the impact that these contributions have had on the growth of a sense of archaeological community.

Understanding and visualising the interconnections between participants will allow the *Day of Archaeology* management collective to improve the mechanisms, through which participants can contribute, connect and create good quality posts, and develop socially productive relationships. This will in turn support the long-term value of the project to the archaeological community as a node for common interest, a snapshot of the profession and tool for social history, beyond its value as a public

²² <http://www.dayofarchaeology.com/archaeology-at-the-end-of-the-date-line-vicarious-video-from-nukunonu-tokelau/>

²³ <http://www.dayofarchaeology.com/metal-detecting-and-archaeological-advocacy-some-observations-and-ideas-from-a-detectorist/>

²⁴ <http://www.dayofarchaeology.com/how-do-you-like-your-walls-your-majesty/>

²⁵ <http://www.dayofarchaeology.com/a-day-in-the-life-of-a-phd-student/>

²⁶ <http://www.dayofarchaeology.com/medieval-graffiti-in-the-waveney-valley/>

Top Tweeters	Vol. of Tweets	@'s	% RT
dayofarch	619	4917	
AdamCorsini	132	180	17
Iornarichardson	124	180	31
portableant	122	164	32
rcahms	121	170	13
m_law	83	90	33
tharrosinfo	81	3	81
JaimeAlmansa	78	32	23
TRArchaeology	75	8	67
TinctureOfMuse	69	11	61
VitaEmilia	67	48	10

Tab. 2. Top Tweeters by volume and retweet for the Day of Archaeology 2013.

engagement and dissemination project. To approach the question of the *Day of Archaeology* as the locus of archaeological community, this section will explore three sets of data: a simple analysis of the tweets using the #dayofarch hashtag; an exploration of the results of an online survey of participants undertaken in July and August 2012 after the second *Day of Archaeology* and two social network analyses of the website content undertaken during the third *Day of Archaeology* in 2012 and 2013.

7. Analysis of the #dayofarch Twitter hashtag

The Twitter platform has been a productive source of publicity with the discipline of archaeology. Team member Dan Pett set up a plugin to measure whether the tweeted links from the *Day of Archaeology* Twitter account were being clicked, and automatically tweeted the majority of posts (except for when the account exceeded the daily rate limit for posting photos). Over 5500 tweets (including retweets) were sent using the #dayofarch hashtag - to put this into perspective, the British Museum #pompeilive²⁷ archive from 18 and 19 June 2013²⁸ showed 18,000 tweets relating to the live cinema broadcast of the Pompeii exhibition on those two days in 2013 (D. Pett 2014, pers. Comm. 5 March). The Twitter accounts which posted the most tweets and had the most @ replies about the *Day of Archaeology* in 2013 are shown in table 2.

²⁷ <https://twitter.com/search?q=%23pompeilive%20%20&src=typd>

²⁸ http://www.britishmuseum.org/about_us/news_and_press/press_releases/2013/pompeii_live.aspx



Fig.5. Day of Archaeology Twitter timeline showing the posting frequency of tweets from 26 July - 1 August. 24 March 2014. Retrieved from: <http://www.dayofarchaeology.com/tinkering-with-the-machine-and-linking-data/>

The *Day of Archaeology* tweets were collected using Martin Hawkey's Tags Version 5 tool²⁹ which is easy to set up and allows the various Twitter conversations that took place about the *Day of Archaeology* to be analysed. For example we could see how many people used the #dayofarch hashtag in their output in 2013 (696), who tweeted the most about the day, and how many interactions were made using the hashtag shown in fig. 5.

8. Online survey

An online survey of the *Day of Archaeology* participants took place after the second event on 29 July 2012. Of the 343 participants in the 2012 iteration, 92 responded to the survey, which was undertaken through Google Docs, a free web-based office suite owned by Google as part of the Google Drive service³⁰. The most significant findings of the survey were situated around the issues of public engagement and moving the project beyond the archaeological community. The respondents felt that the project encouraged a focal point and sense of community amongst professional archaeologists, which traversed boundaries of geography, discipline and academic affiliation. The sharing of posts and tagging of articles with similar themes, encouraged discussion of activities and interests within the archaeological community - archaeologists working in different contexts or continents on similar material were able to make connections and discuss plans to share data and work together in future. The survey findings emphasised that participation in the *Day of Archaeology* had successfully fostered a sense of community creation through participation in the project and that the creation of a situated community through involvement with the wider project was especially valued:

"It's good to know that there are indeed a lot of archaeologists out there. By having the day of archaeology, it sort of helps bonding us up together as a profession."

²⁹ <http://mashe.hawkey.info/2013/02/twitter-archive-tagsv5/>

³⁰ <https://www.google.com/drive/?authuser=0>

"It was easy to contribute and you felt like you were part of a larger community and helping to spread knowledge of archaeology (both to the public, but also to other archaeologists)"

"...also made individuals feel more a part of a world-wide community, regardless of the differing avenues of archaeology or related disciplines an individual currently works in."

The greatest concerns of the participants noted in the survey responses were the abilities of the project to promote itself as an educational and useful resource that would experience repeated visits once the initial excitement over the *Day of Archaeology* had finished, and questioning how the project could effectively engage with members of the public beyond the archaeological world and encourage a wider number of participants from outside Europe and North America.

"...I'm not sure if it spread further than other archaeologists"

"I believe this project is one of the most interesting outreach initiatives done. What is left is to give it a wider range of participants and more publicity in the public sphere."

The issue that the project was born-digital was also represented in the survey responses, since the publicity and social networks that were engaged to share and promote information about the day was almost exclusively social media platforms, especially Twitter, Facebook and blogs. The only 'real-life' publicity provided by the *Day of Archaeology* project collective were a downloadable publicity poster for participants to print and display themselves, and some flyers added to conference packs at the Theoretical Archaeology Group conference in 2011 and for the Spanish-language JIA archaeology conference in 2013 (J. Almansa Sanchez and P. Hadley 2013, pers. comm., 12 November). There were contradictory opinions from the participants on the perceived benefits of a completely digital project publicity campaign. Some felt that the digital platforms excluded possible participants, who did not use social networking sites:

"..I know that folks who are not on Twitter or Facebook tend to not know about it. They may well go to the site if they knew. Need better way to get info out. I think sending out flyers ahead of time was a great idea..."

Although others felt that by harnessing the reach of online social networks, a wider group of people could be accessed:

"Social networking has meant that word about the event has spread across a large demographic"

The responses to the survey, alongside the blog comments, certainly demonstrate that participation in the *Day of Archaeology* project is the enactment of a form of 'bridging' social capital as outlined by Putman (2001). These 'bridging' relationships are not part of one's regular, close social network, but are instead sources of information, professional connections and organisational networking (Wellman 1992; Constant *et al.* 1996; Kavanaugh *et al.* 2005). The connections supported by the *Day of Archaeology* website comments facility is interesting to examine - as new posts were created, new connections could be made, frequently within the discipline itself rather than between members of the public and archaeologists.

9. Analysis of website content

Some of the main obstacles to using the *Day of Archaeology* project as an open resource and information bank for the archaeology sector are the number of contributions and searching the number of posts on the site, especially when the navigation of the site does not easily differentiate between each year of the project's iteration. The current search facilities provide a category search and a free-text search box (fig. 6). The *Day of Archaeology* search engine is run on Apache Solr, an open source enterprise search platform, whose features include "powerful full-text search, hit highlighting, faceted search, near real-time indexing, dynamic clustering, database integration, rich document (e.g., Word, PDF) handling, and geospatial search" (Apache Solr 2013). This is an extremely powerful search solution, and one that is far more comprehensive than the native WordPress search facilities. It is possible to perform complex searches if one knows how to use the syntax – a better guide to how to search the website using this may support better interrogation of the site content (D. Pett 2013, pers. comm. 10 December). However, as each article is edited and categorised either by the individual contributor or one of up to eleven members of the project team, there can be no guarantee that the articles have been tagged or categorised appropriately and fully, which will affect the search capabilities of the site – and this is an issue for all multi-authored sites, so this project is not a singular example of this.

Work using social networking analysis, quantitative analysis and visualisation has been particularly enlightening on the issue of community development and useful content within the project. Shawn Graham, a digital archaeologist and Assistant Professor of Digital Humanities at Carleton University in Ottawa, Canada, examined the *Day of Archaeology* project through the use of topic-modelling (Graham 2012). Topic model-

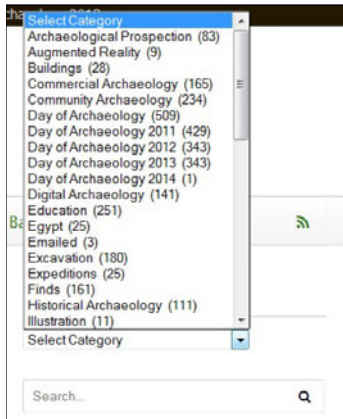


Fig. 6. Screenshot of the Day of Archaeology website search facilities. 16 March 2014. Retrieved from: <http://www.dayofarchaeology.com/>

ling can be understood as tools for extracting topics or injecting semantic meaning into vocabularies;

Topic models represent a family of computer programs that extract topics from texts. A topic to the computer is a list of words that occur in statistically meaningful ways. A text can be an email, a blog post, a book chapter, a journal article, a diary entry - that is, any kind of unstructured text (Graham *et al.* 2012).

The work Graham undertook on the *Day of Archaeology* website content attempts to answer his question “What are the discourses of practicing archaeologists?” and the results offered some interesting insights into understanding the *Day of Archaeology* project as a community of practice. The production of a “mental geography of archaeological discourse” (Graham 2012) indicated that the top three topics modelled by Graham that connects the *Day of Archaeology* project together are 10, 13, and 17 in table 3. Topics 13 and 17 relate to the day-to-day tasks that archaeologists do and the activities that break up the day, whilst

Topic	Keywords
10	field day students year summer school reading week continue lab university learn photo program dig questions process called student season graduate page river campus digging unit crew experience class undergraduate veterans features larger dirt director learning sense order indiana artifacts
13	archaeology project day heritage work report team week activities staff month busy time working emails blog wessex today planning archaeological friday check due fieldwork visit company environment officer previous design exciting office manager event based current reports development side table
17	day work time back things job office today days good home made morning working start lunch making started spend call long pretty couple finally short writing moment meeting finished leave lots read afternoon involved feel happy rest top don

Tab. 3. Topics gathered from Graham's work on the Day of Archaeology. 18 March 2014. Retrieved from: <http://electricarchaeology.ca/2012/07/09/mining-a-day-of-archaeology/>

topic 10 seems to relate to how we study and teach the discipline.

In 2013, as a response to the issue of searching the large number of posts on the site, Ben Marwick, an archaeology Professor from the University Of Washington Department Of Anthropology, undertook “distant reading”³¹ to gain insight into the contents of the *Day of Archaeology* website content (Marwick 2013). His work through distant reading attempted to explore what a typical day for an archaeologist might be, the different kinds of archaeological activities represented in the blog posts and whether there are any similarities between the types of archaeologist’s experience. In the 2012 to 2013 corpus there were a total of 352,558 words in 622 blog posts by 370 unique authors. The number of authors is inexact because some posts were made by multiple authors. There were significantly fewer blog posts written in 2013 ($n = 273$) compared to 2012 ($n = 348$), but the average length of the posts is slightly higher in 2013 (mean = 591) compared to 2012 (mean = 549) (Marwick 2013).

Marwick’s work discovered that there was a noticeable shift in the topics mentioned in the corpus of material on the site from 2012 to 2013. Topics 12, 23 and 28 are non-English language topics indicating a greater international contribution that year and Topic 6 reflects the large number of posts in 2013 by or about archaeologists working with the Royal Commission on the Ancient and Historical Monuments of Scotland (Marwick 2013). From the topic modelling, Marwick was able to identify the types of activities most mentioned by the participating archaeologists, and the hierarchical clustering of topics in fig. 7 shows that most topics are very similar, with museum topics acting as a distinct group (Marwick 2013). Field survey and excavation are common topics, as well as activities related to the discovery of archaeology through geophysics or aerial photography;

The context of site discovery and artefact recovery is frequently one where education and community engagement are priorities. For example, topic 10 includes mentions of students and children, and topic 3 references learning, communities and kids. The discovery and recovery process is also quite labor intensive, especially when it comes to producing documentation. We see terms relating to documenting finds, such as forms, records and database across several topics (Marwick 2013).

Marwick’s conclusion supports the evidence that a significant number of contributors to the *Day of Archaeology* project are already involved in

³¹ “Distant reading” is a term created by Franco MORRETI (2005; 2013) whose work theorised a mode of literary macro analysis based on the analysis of a large volume of literary material.



Fig. 7. Cluster dendrogram of topics from the Day of Archaeology created by Ben Marwick. 16 March 2014. Retrieved from: <https://github.com/ben-marwick/dayofarchaeology>

some form of public archaeology. Topic 11 reveals the world of the heritage manager, with topics associated with commercial archaeology, the planning process or site management and Topic 4 demonstrates the popularity of the *Day of Archaeology* project within digital archaeological circles and the digital humanities, with topics associated with ICT.

The information provided by Graham and Marwick provides an interesting in-depth, exploration of the many topics and themes presented by the Day of Archaeology participants. Whilst this information cannot indicate how useful the project has been for the creation of online communities of practice, it does demonstrate very clearly the educational resource that the project website provides, and the amount of mineable potential in the data contained within.

10. The *Day of Archaeology* as an educational resource

There have been a number of organisations and individuals that have used the material on the *Day of Archaeology* website for educational pur-

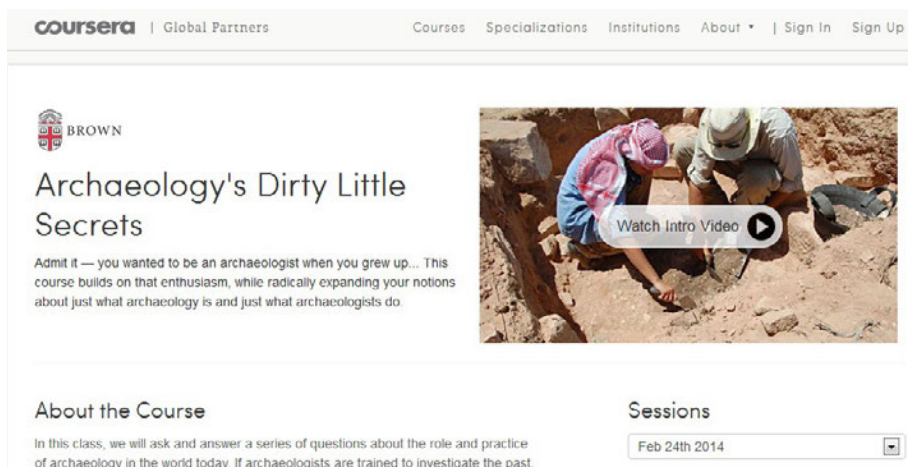


Fig. 8. Screenshot of the Coursera/Brown University MOOC 'Archaeology's Dirty Little Secrets'. 1 March 2014. Retrieved from: <https://www.coursera.org/course/secrets>

poses and archaeological careers advice. One of the collective members, Andrew Dufton, a Ph.D. student at Brown University, was involved as a teaching assistant on an archaeology-focused Massive Open Online Course (MOOC) organised by Brown University through the online education company Coursera (Coursera 2014). The online course is aimed at large-scale participation and provides open, free access to the course materials, videos and reading lists via the Internet. The Brown University online course *Archaeology's Dirty Little Secrets* (fig. 8) ran for the first time during June and July 2013 and again in February 2014³². The *Day of Archaeology* project website was used as a case study for unit seven of the course entitled "Where does archaeology happen? Who can play?" and also featured in the forum discussions. On the *Day of Archaeology* itself in 2013, information about the project was posted on the course Facebook page, and the post received 56 likes, 8 comments, and 12 shares, with an overall reach of just over 2500 individuals (A. Dufton 2013, pers. comm. 8 November).

The Day of Archaeology website content has also been used as source material for Indiana University South Bend Anthropology & Informatics (EvolvedTech 21 Nov. 2013), Schools Prehistory, an education organisation in the UK focused on the presence of prehistory in the National Curriculum (kimbiddulph 21 Nov. 2013) and as part of an undergraduate assignment for a course on the representation of archaeology in the popular media at the University of Washington Seattle (Marwick 2014).

³² <https://twitter.com/lornarichardson/status/439791595895152641/photo/1>

11. Archiving the *Day of Archaeology*

The development of the *Day of Archaeology* project also raised the issue of long-term digital content preservation and archiving social media. Despite the transient nature of the online tools used, the project team recognised the value of the material being published on the project site and felt that it was appropriate to preserve this material for future research (D. Pett, 2014, pers. comm. 14 January). As part of the process of working towards archiving the content, issues of privacy, copyright and intellectual property rights were considered from the beginning of the project, and explicit permission has been sought for archiving from the participants during the registration process (Richardson 2012). The team envisaged from the beginning that the site content would remain available online afterwards for as long as possible, under a Creative Commons Attribution-ShareAlike 3.0 License³³. This would encourage visitors to discuss, comment on, share, use and reuse content beyond the *Day of Archaeology* itself each year, and stand as a snapshot record of the discipline year-by-year.

The site is archived as part of the British Library's web archiving programme, a free-to-view project which can be accessed directly from the Internet, although it does not capture the information held in the *Day of Archaeology* site beyond the text and images (British Library 2011). The Archaeological Data Service (ADS) became involved in discussions with the *Day of Archaeology* project during 2012, to explore the possibility of creating a long-term archive for the *Day of Archaeology* site content, which will be extracted and stored outside the open-source platforms which currently contain the website (Jeffrey 2012, p. 565). The content of the *Day of Archaeology* website has been already been extracted and made available as a comma separated values (CSV) file by Ben Marwick via Github³⁴, a code-repository site for open source projects. This data is freely available, and can be manipulated and repurposed under the *Day of Archaeology* Creative Commons license (Marwick 2013).

12. Discussion

The experience of creating and managing the *Day of Archaeology* project has provided the project team with a useful insight into best prac-

³³ <http://creativecommons.org/licenses/by-sa/3.0/>

³⁴ <https://github.com/>

tices for managing digital public archaeology projects. There have been a number of positive and negative experiences working as part of a collective, and crowdsourcing contributions from archaeologists globally. This is perhaps where the *Day of Archaeology* project exposes the weaknesses and strengths of using digital communications as the basis for a public archaeology project in equal measure.

There are a series of issues that have been part of the production of the project, that are valuable lessons for future digital archaeology projects. The organisational arrangement of a 'collective' to manage and direct the project in fact allows irregular participation in the organisational side of the project, and this has led to some members of the team taking on more of a share of the lead-in to the project than others, and some unable to help out on the *Day of Archaeology* at all due to other commitments. A more formal organization of responsibilities may help this process. The lack of funding for the project has limited the amount of publicity that the project has been able to undertake, and ensuring that funds are available; both for staff time, and for project materials such as posters, are essential for the project to expand to its full potential.

Involving archaeologists beyond Anglophone countries has been difficult, due to the language limitations of the team involved. Attracting archaeologists who do not use social media as part of their everyday work-related communications is difficult, especially when using social media as the primary form of communication to publicise the project. Creating a publicity drive for the project as a resource for the wider public, as well as for the professional archaeological community for use in careers guidance or as source of educational material is essential if the project is to meet its participatory potential.

Clearer instructions for participants are needed, explaining how to upload contributions and layout the text and images correctly, and how to add relevant geo-references and metadata to the contributions. This would make the process of editing and publishing the content much simpler for the time-pressed *Day of Archaeology* project team. Clearer instructions are needed on how to use the search power of the Apache Solr search facilities, which may assist visitors to the website to make better use of the website content as an educational resource, and as a platform for exploring the discipline.

The survey findings and an examination of the comments on the site has demonstrated that for many participants, the *Day of Archaeology* had created a sense of community through the act of taking part in the project, which reflects the theory of weak ties and social capital. In terms of the public archaeology theory, the *Day of Archaeology* certainly meets the requirements of Merriman's "multiple perspectives model"

where archaeologists engage with the public from a desire to enrich people's lives, and stimulate thought, emotion and creativity (Merriman 2004, p. 7). It also complies with Holtorf's "public relations model", where archaeologists are actively involved in improving the public image of the discipline (Holtorf 2007). The *Day of Archaeology* project also reflects Matsuda and Okamura's (2011) "outreach" model, since archaeological experts are communicating archaeological information to non-archaeologists. The project is an example of public archaeology in practice, since the *Day of Archaeology*, as a digital project, offers a form of "democratisation of communication, activity or administration; through communication with the public".

From the data discussed in this article, online interaction through social media appears to engender a sense of affinity with the subject at hand, and supports weak tie relationships that develop into trusted and reliable online contacts. Whether these archaeological communities are located on social media platforms, created through participatory projects like the *Day of Archaeology*, or developed and dispersed through the actions of digital activism, the affinity with the subject of archaeology is the "cement that bonds, perhaps only for a moment, but a moment that lingers" (Merrifield 2011, p. 109). The data from the *Day of Archaeology* demonstrates that self-identification as belonging to an online archaeological community or communal activity creates a sense of group intimacy and shared purpose, and that these networks develop a sense of mutual obligation and support, both online and offline. The concept of online community formation is a key issue for archaeology in the UK and Europe, especially during a period of unprecedented threat to the public funding of heritage organisations and the archaeological aspects of the planning system. The potential for heritage organisations to exploit opportunities to leverage the interest of archaeological communities online, and the associated weak ties and social capital is an important area for further research.

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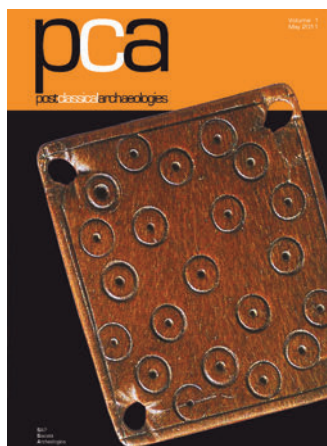
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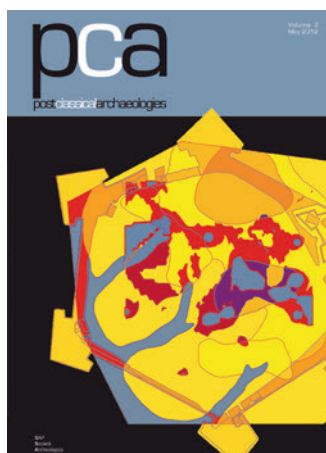


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