A journey into the unknown

The ADS’s voyage into expanding its dissemination of digital archives

Teagan Zoldoske
Archaeology Data Service
University of York

http://archaeologydataservice.ac.uk
Today I’ll be discussing what the ADS is, how we use social media, how this use has changed and the impact change had, and finally how COVID-19 effected us.
The archaeology data service is based at the university of York and was established in 1996, 6 years after Tim Berners-Lee developed the world wide web and two years before Google.

ADS is the only certified digital repository in the UK for heritage data, with over 20 years of experience supporting research, learning and teaching with free, high quality and dependable digital resources.

Over those years we have gained the trust of the archaeology community through our policies and guides.
We use social media a lot. We use it to highlight new and old archives, join in community discussion as well as make general announcements and more. We are most active on Twitter followed by Facebook, Instagram, and finally LinkedIn. This is reflected by our follower size for each of the accounts.
Before I go any farther there are some terms that I need everyone to be familiar with. These terms are largely how Facebook defines each of these terms and having use all understand these terminologies is vital to understand the changes we experienced though I’ll try and not be too term heavy.

As explained by Facebook

**New likes/unlikes:** The number of new people who have liked/unliked your Page (Unique Users)

**Engaged users:** The number of people who engaged with your Page. Engagement includes any click or story created. (Unique Users)

**Logged-in Page views:** Page Views from users logged (Total Count)

**Profile Visits:** The number of people who visited your Page. (Unique Users)

**Mentions:** The total number of times your profile was mentioned in another users post. (Total Count)
Social media terms explained cont.

**Impression:** When someone sees something from your Page. This can happen multiple times for one person. (Total Count)

**Total Reach:** The number of people who had an impression of your page NOT including friends seeing friend’s activity. (Unique Users)

**Viral reach:** The number of people who had an impression of your page INCLUDING friends seeing friend’s activity. (Unique Users)

As explained by Facebook

**Impressions:** The number of times any content from your Page entered a person's screen. This includes posts, stories, check-ins, ads, social information from people who interact with your Page and more. (Total Count)

**Total Reach:** The number of people who had any content from your Page enter their screen. This includes posts, check-ins, ads, social information from people who interact with your Page and more. (Unique Users)

**Viral reach:** The number of people who had any content from your Page enter their screen through with social information attached. As a form of organic distribution, social information displays when a person's friend interacted with your Page, post or story. This includes when someone's friend likes or follows your Page, engages with a post, shares a photo of your Page and checks into your Page. (Unique Users)
Prior to 2019, post across all of our social media platforms were sporadic and tended to focus primarily on new material. We knew this irregular posting wasn’t good and when combined with lack of confidence from some staff members and a lack of any clear policy on the subject, something needed to be done.

So in 2019, a new focus on social media was made. New staff were hired to help with this initiative. We increased the activity on Facebook, Twitter, and LinkedIn and created an Instagram account.

And we saw some pretty interesting changes.
Here you can see the number of tweets and retweets we were doing each month increased significantly.
This increase had an impact. We more then doubled our mentions, impressions, profile visits, and engagement on twitter.
We saw similar increases on Facebook.

By increasing our posting frequency and interactions we saw an increase in:
- New followers
- Profile visits
- Total impression
- Mentions by others
- Engagement
- Etc

But how did this impact us?
We saw obvious gains in social media but we wanted to know how this affected our archives. We limited our scope to just Facebook and Twitter as Instagram was new and LinkedIn was in the process of being revitalized.

The posts/tweets from Facebook and Twitter were downloaded to find out which collections were publicised. I then downloaded the page visits for all of our collections.

From there, the collection summaries were separated into two groups: publicised and non published. Then, the month(s) that each collection was published on was assigned a treatment value (1) to create a matrix. All treatment values were 1 regardless of the number of times a collection may have been published on social media during a month (archives are often published on Facebook and Twitter simultaneously).

Three models were then fitted using this information via R: independently pooled panels (IPP), independently pooled panel with fixed effect model (IPP fixed), and independently pooled panel with random effects model (IPP random). These models show if there was an effect from publicising the data, and if so, how much (R also showed additional analysis of the effectiveness of the models).

By using 2018 and 2019 as separate, we control for the changes that were caused by hiring new staff. By testing 2018-2019, we established a baseline through the models tested.

When investigating these models, IPP shows a baseline for comparison with the other models. The ‘views’ as listed in the table show the estimated number of views without promotion while the ‘treatment’ in the table shows the additional views to the archive within the month of publishing them on social media.

The bottom two models show a more consistent effect for publishing archives on social media and the base number of views is more in line with what we would expect given the difference between different archives.

Full explanation

To measure the impact these sites had on redirecting traffic to our archives, we used the page visits for all collections. This was chosen for simplicity. If we had used page views or downloads, we would have had to consider both of these counts in conjunction. This would have then accounted for search interfaces (which have no downloads). However, we would then have had to investigate if high-slide bypasses the download count. The main downside with page visits is that the total is collected over a one month period so some results may be misleading for archives that were published at the end of the month.

From there, the collection summaries were separated into two groups: publicised and non published. Then, the month(s) that each collection was published on was assigned a treatment value (1) to create a matrix. All treatment values were 1 regardless of the number of times a collection may have been published on social media during a month (archives are often published on Facebook and Twitter simultaneously).

Three models were then fitted using this information via R: independently pooled panels (IPP), independently pooled panel with fixed effect model (IPP fixed), and independently pooled panel with random effects model (IPP random). These models show if there was an effect from publicising the data, and if so, how much (R also showed additional analysis of the effectiveness of the models).

By using 2018 and 2019 as separate, we control for the changes that were caused by hiring new staff. By testing 2018-2019, we established a baseline through the models tested.

When investigating these models, IPP shows a baseline for comparison with the other models. The ‘views’ as listed in the table show the estimated number of views without promotion while the ‘treatment’ in the table shows the additional views to the archive within the month of publishing them on social media.

The bottom two models show a more consistent effect for publishing archives on social media and the base number of views is more in line with what we would expect given the difference between different archives.

**Estimated number of views before treatment (standard deviation)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IPP</td>
<td>11.2 ± 0.6</td>
<td>20.4 ± 4.5</td>
<td>10.7 ± 0.9</td>
<td>72.2 ± 7.1</td>
<td>11 ± 0.5</td>
<td>46.7 ± 4.3</td>
</tr>
<tr>
<td>IPP fixed</td>
<td>9.7 (NA)</td>
<td>24.9 ± 0.9</td>
<td>9.9 (NA)</td>
<td>55.1 ± 5.7</td>
<td>9.9 (NA)</td>
<td>39.8 ± 2.9</td>
</tr>
<tr>
<td>IPP random</td>
<td>9.7 ± 1.8</td>
<td>24.9 ± 0.9</td>
<td>10.2 ± 2.1</td>
<td>55.3 ± 5.5</td>
<td>10.0 ± 1.9</td>
<td>39.8 ± 2.8</td>
</tr>
</tbody>
</table>

*Estimated number of views before treatment (standard deviation)

** Estimated number of views due to treatment (standard deviation)
The baseline views remained roughly the same for the different tests. We were pulling in 15 new views to an archive whenever it was published on social media. Once we became more active on social media in 2019, this was raised to 45 additional views.

In 2018, social media publication was mainly limited announcing new releases of archives with the occasional to Friday photo or retweet. In 2019, however, there were additional themes that were posted per month which greatly increased the engagement on these profiles that was then reflected in increased views to archives. We felt that the amount of additional time we put into social media to get these gains was worth it and will help increase yearly gains in the future.
In March of 2020 the ADS switched to working from home at a reduced capacity. While the way we used social media remained the same, how did COVID impact us?


But changing our use of social media isn’t the only impact we’ve seen. COVID-19 had an impact as you may expect. To investigate this impact, I compared the 9 months prior to lockdown 1 and the nine months after it. Again I’m going to be comparing Twitter and Facebook but this time for consistency’s sake.

https://commons.wikimedia.org/wiki/File:SARS-CoV-2_without_background.png
Twitter post covid

- The number of Tweet impressions increased by 11%
- Profile visits and post engagement increased by ~50%

<table>
<thead>
<tr>
<th>Time Period</th>
<th>May 19 - Mar 20</th>
<th>Apr 20 - Feb 21</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tweet impressions</td>
<td>77k</td>
<td>83k</td>
<td>11%</td>
</tr>
<tr>
<td>Profile visits</td>
<td>430</td>
<td>666</td>
<td>55%</td>
</tr>
<tr>
<td>Mentions</td>
<td>60</td>
<td>67</td>
<td>11%</td>
</tr>
<tr>
<td>New followers</td>
<td>60</td>
<td>84</td>
<td>39%</td>
</tr>
<tr>
<td>Average engagements</td>
<td>25</td>
<td>38</td>
<td>52%</td>
</tr>
<tr>
<td>Average engagement rate</td>
<td>1.52%</td>
<td>1.98%</td>
<td>30%</td>
</tr>
<tr>
<td>url clicks</td>
<td>5</td>
<td>6</td>
<td>29%</td>
</tr>
</tbody>
</table>

Twitter saw some modest increases in impressions and mentions and a marked increase in profile visits and average engagement.
This is likely due entirely to Covid and not special instances like a post going viral as Twitter sees a post do significantly better than the rest every month or two.
Table summary showing monthly totals.

Facebook explains these terms as explained on the following slides.

Facebook on the other hand had much more interesting changes happen during covid in my opinion.

**Daily Total Reach** The number of people who had any content from your Page or about your Page enter their screen. This includes posts, check-ins, ads, social information from people who interact with your Page and more. (Unique Users)

**Daily Viral Reach** The number of people who had any content from your Page or about your Page enter their screen through with social information attached. As a form of organic distribution, social information displays when a person’s friend interacted with your Page, post or story. This includes when someone’s friend likes or follows your Page, engages with a post, shares a photo of your Page and checks into your Page. (Unique Users)

Monthly average for the viral reach for all posts:

- 2019: 10,007
- 2020: 17,205 (with)
- 2020: 14,193 (w/o)
### Facebook post covid – Page views

<table>
<thead>
<tr>
<th>Month</th>
<th>Likes</th>
<th>Unlikes</th>
<th>Page Engaged Likes</th>
<th>Total Reach</th>
<th>Viral Reach</th>
<th>Logged-in Page Views</th>
</tr>
</thead>
<tbody>
<tr>
<td>May-19</td>
<td>2532</td>
<td>25</td>
<td>6</td>
<td>240</td>
<td>6582</td>
<td>1177</td>
</tr>
<tr>
<td>Jun-19</td>
<td>2539</td>
<td>13</td>
<td>6</td>
<td>193</td>
<td>6194</td>
<td>1556</td>
</tr>
<tr>
<td>Jul-19</td>
<td>2553</td>
<td>24</td>
<td>9</td>
<td>443</td>
<td>10385</td>
<td>3429</td>
</tr>
<tr>
<td>Aug-19</td>
<td>2575</td>
<td>30</td>
<td>6</td>
<td>509</td>
<td>11171</td>
<td>3443</td>
</tr>
<tr>
<td>Sep-19</td>
<td>2625</td>
<td>55</td>
<td>8</td>
<td>892</td>
<td>12685</td>
<td>6734</td>
</tr>
<tr>
<td>Oct-19</td>
<td>2658</td>
<td>41</td>
<td>10</td>
<td>548</td>
<td>11262</td>
<td>2850</td>
</tr>
<tr>
<td>Nov-19</td>
<td>2698</td>
<td>47</td>
<td>2</td>
<td>809</td>
<td>11516</td>
<td>3771</td>
</tr>
<tr>
<td>Dec-19</td>
<td>2703</td>
<td>16</td>
<td>10</td>
<td>401</td>
<td>10264</td>
<td>3157</td>
</tr>
<tr>
<td>Jan-20</td>
<td>2865</td>
<td>170</td>
<td>7</td>
<td>2268</td>
<td>32686</td>
<td>26096</td>
</tr>
<tr>
<td>Feb-20</td>
<td>2913</td>
<td>73</td>
<td>3</td>
<td>1036</td>
<td>15146</td>
<td>8080</td>
</tr>
<tr>
<td>Mar-20</td>
<td>2949</td>
<td>24</td>
<td>7</td>
<td>642</td>
<td>9700</td>
<td>2943</td>
</tr>
<tr>
<td>Apr-20</td>
<td>2992</td>
<td>52</td>
<td>6</td>
<td>976</td>
<td>15127</td>
<td>42482</td>
</tr>
<tr>
<td>May-20</td>
<td>3037</td>
<td>59</td>
<td>12</td>
<td>1040</td>
<td>19009</td>
<td>12374</td>
</tr>
<tr>
<td>Jun-20</td>
<td>3279</td>
<td>256</td>
<td>12</td>
<td>3429</td>
<td>50334</td>
<td>43222</td>
</tr>
<tr>
<td>Jul-20</td>
<td>3288</td>
<td>25</td>
<td>4</td>
<td>510</td>
<td>10053</td>
<td>4166</td>
</tr>
<tr>
<td>Aug-20</td>
<td>3322</td>
<td>33</td>
<td>7</td>
<td>217</td>
<td>4581</td>
<td>830</td>
</tr>
<tr>
<td>Sep-20</td>
<td>3396</td>
<td>79</td>
<td>4</td>
<td>786</td>
<td>16300</td>
<td>13168</td>
</tr>
<tr>
<td>Oct-20</td>
<td>3454</td>
<td>65</td>
<td>4</td>
<td>448</td>
<td>9360</td>
<td>9360</td>
</tr>
<tr>
<td>Nov-20</td>
<td>3493</td>
<td>49</td>
<td>7</td>
<td>316</td>
<td>6127</td>
<td>1163</td>
</tr>
<tr>
<td>Dec-20</td>
<td>3518</td>
<td>32</td>
<td>8</td>
<td>721</td>
<td>17862</td>
<td>11195</td>
</tr>
<tr>
<td>Jan-21</td>
<td>3537</td>
<td>35</td>
<td>3</td>
<td>382</td>
<td>8028</td>
<td>3311</td>
</tr>
<tr>
<td>Feb-21</td>
<td>3616</td>
<td>63</td>
<td>9</td>
<td>1400</td>
<td>18545</td>
<td>12556</td>
</tr>
<tr>
<td>Mar-21</td>
<td>3650</td>
<td>34</td>
<td>9</td>
<td>476</td>
<td>12315</td>
<td>3587</td>
</tr>
</tbody>
</table>

Average page views per month:

- **Pre-March**: 250
- **Post-April**: 268
- **7% increase**

Small increase in average page views per month.
The average amount of likes and engaged users we got on Facebook had very good increases.

Avg likes/dislikes per month:
- 2019: 4
- 2020: 10 (11 with)
- 2021: 6
The total viral reach had a nice increase once lockdown was called.

**Daily Total Reach** The number of people who had any content from your Page or about your Page enter their screen. This includes posts, check-ins, ads, social information from people who interact with your Page and more. (Unique Users) **Daily Viral Reach** The number of people who had any content from your Page or about your Page enter their screen through with social information attached. As a form of organic distribution, social information displays when a person's friend interacted with your Page, post or story. This includes when someone's friend likes or follows your Page, engages with a post, shares a photo of your Page and checks into your Page. (Unique Users)

Monthly average for the viral reach for all posts:

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Viral Reach</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>10,007</td>
</tr>
<tr>
<td>2020</td>
<td>17,205 (with)</td>
</tr>
<tr>
<td>2020</td>
<td>14,193 (w/o)</td>
</tr>
</tbody>
</table>
The most significant numbers come from the viral reach however. We saw an absolutely massive amount of people viewing our posts. To the point where I had to exclude April to get a more realistic idea of how this effected our actual viral reach numbers. I’d also like to note, August low of 830 (Eat out to Help out). Yet despite this massive increase in viral reach, we didn’t see a corresponding increase in the other values.

**Daily Total Reach** The number of people who had any content from your Page or about your Page enter their screen. This includes posts, check-ins, ads, social information from people who interact with your Page and more. (Unique Users)

**Viral Reach** The number of people who had any content from your Page or about your Page enter their screen through with social information attached. As a form of organic distribution, social information displays when a person's friend interacted with your Page, post or story. This includes when someone's friend likes or follows your Page, engages with a post, shares a photo of your Page and checks into your Page. (Unique Users)

Monthly average for the viral reach for all posts:
- 2019: 10,007
- 2020: 17,205 (with)
- 2020: 14,193 (w/o)
2020 had a few viral posts. Most notable is this one from June 2020. We saw a greater increase from viral posts like this then the increased viral reach lockdown gave us.

In fact, most of the increases we saw were due to this post. This post from alone gave us a much larger impact in terms of Page likes and engagement then the massive viral reach did. People were just scrolling without interacting with what they saw in April over lockdown 1.
In conclusion, by increasing our online presence, we were able to increase the expected traffic to an archive by 120%.

Covid had an effect on us but it changed via the platform. Facebook saw a massive increase in our viral reach but that translated to only modest increases. Viral posts had a greater impact. Twitter saw profile visits and post engagement increased by ~50% without the singular viral post impact that Facebook had.

Lockdown did increase traffic to our archives but a singular viral post did just as much. As such, increasing our own engagement with social media has been what was key to our growth. Though having more people seeing our posts, especially when one went viral helped.
Thanks for listening

Teagan Zoldsoske
teagan.zoldsoske@york.ac.uk
Digital Archives Assistant
Archaeology Data Service
University of York

Follow us on LinkedIn:
@Archaeology Data Service

Follow us on Instagram:
@archaeologydataservice

Follow us on Twitter:
@ADS_Update

Like us on Facebook:
@archaeology.data.service

07/05/2021 http://archaeologydataservice.ac.uk 23

Thanks you, any questions?