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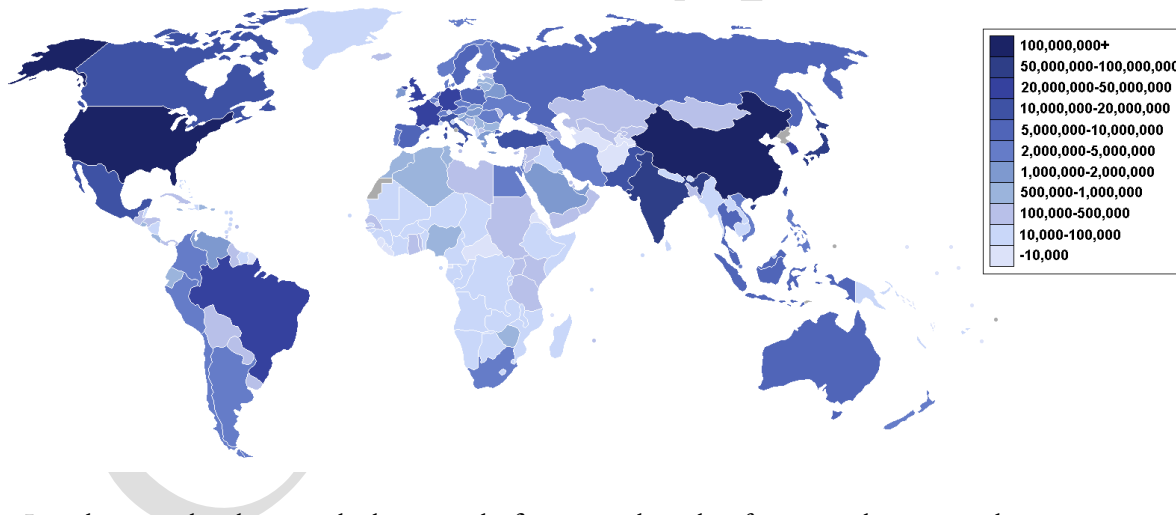
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MASSIVE OPEN ONLINE ARCHAEOLOGY, MASSIVE OPEN ONLINE OPPORTUNITY: TOWARD A WORLDWIDE COMMUNITY OF ARCHAEOLOGICAL PRACTICE

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and Quantitative Methods in Archaeology*

The spread of social, instructional, and investigative technologies via the World Wide Web in recent years has provided the public at large with heretofore-unimagined access to information. In 2013, 2.77 billion people worldwideⁱ were classified as “Internet Users,” as defined by the International Telecommunications Union.ⁱⁱ The rise of the Internet age has literally put the combined knowledge of the world at the fingertips of over a third of the planet’s population, allowing for questions to be answered, knowledge to be transmitted, and social endeavors to be engaged in at lightning speeds in some of the most remote corners of the globe. The latter of these may be the most noteworthy at this point in the Internet’s development: whereas we have long been able to view the world wide web as a tool of information dissemination, the one-to-many model no longer monopolizes Internet design and usage. Instead, people both *shape* the information available on the Internet, making its contents a *conversation* rather than a tool for *broadcast*, and they engage in direct communication with their fellow users via various tools available to them.



In other words, along with the spread of internet-based *information* has come the opportunity for internet-based *content creation*, via well-known collaborative enterprises (like, for example, Wikipedia) but also via lesser-known, but also potentially influential, platforms like social media accounts and personal blogs – all of which are available for free to anybody with a computer and an internet connection.

Unfortunately, the egalitarian – and frequently anonymous – nature of online content creation can lend itself to the spread of *misinformation* and *misinterpretation* as much as it can to the creation of reliable content and commentary. An example of this in popular culture is the constant presence

of reported celebrity deaths, frequently begun on twitter, that have deprived our culture of Paul McCartney, Morgan Freeman, Tom Hanks, Harrison Ford, and at least three dozen others.ⁱⁱⁱ

Archaeology, of course, is far from immune to this side effect of the 21st century web. “Adventures in bad archaeology” abound online, and every one of us could be forgiven for reacting to such a twisting of our profession with a combination of horror and a renewed commitment to *preventing* archaeological information from reaching the general public prior to being surrounded by comprehensive, carefully-researched and –crafted contextualization and explanation.

Unfortunately, archaeology in the 21st century – like any other subject or pursuit – cannot exist in isolation, remaining tightly guarded secret until its practitioners have mummified each new data point inside an impenetrable wrap of contextualization and explanation that would provide non-specialists with one part raw data and ninety-nine parts direction on how to view, think about, and use those data. As this session’s existence alone demonstrates, many within our field have no intention of holding up archaeology, and the data points archaeologists recover, as the property of specialists alone – a fortuitous fact indeed, because the nature of modern communication and the platforms available for content creation make such a move not only impossible, but *counter* to the desires of those in our field.

The nature of the 21st century Internet, and of human communication in the Internet age, is one of openness and personal contributions to the discussion surrounding whatever subject an individual may be interested in. This, combined with the opening of museum collections, the ability to conduct armchair “surveys” via tools like Google Earth, unfettered access to uncontextualized images via simple Web search, and similar developments, has ensured that the web will continue to abound in perpetuity with myriad explanations and interpretations of artifacts, archaeological data, and history writ large. Given this, the last thing we should do is pull back from the public arena of ideas and discourse, as any attempt by specialists in archaeology or any other field to withhold information – even if it is done with the purest of intentions – *is to cede the battlefield of information to everybody else*.

A partial solution to this conundrum may be found in a location that seems, at first blush, to be an unlikely place to look for a savior. I speak here of the MOOC, or the “Massive Open Online Course” – an acronym and term which, as I will discuss a bit further in a moment, is increasingly disinclined toward that which it purports to describe. As an offering to the public in the free and open space, the MOOC can serve as a structured mechanism for professionals across the academy to *reach, interact with, educate, and learn from* an ever-growing online audience. This is of particular importance for archaeology, a field in which standards of conduct and interpretation are keys to sound and ethical practice.

Though no single MOOC will ever compete with the overall traffic of a site like Wikipedia, the presence of these learning experiences in the free and open space is a resounding positive for open access to information, and sends a strong signal that specialists are not prepared to withdraw from the discussions surrounding their areas of expertise and cede the arena of ideas, once again, to *everybody else*.

The open, *inclusive* nature of MOOC-based learning experiences can allow them to coexist and compete with similarly free and open sources of information about archaeological topics that are broadly accessible on the public Internet. Further, in the MOOC environment, experts leading open online learning experiences can draw in new participants, while simultaneously ensuring that the facts, techniques, and practices conveyed in their particular learning experience represent accurate scholarly interpretation and understanding, as well as the most up-to-date professional standards and methods.

The multidirectional communication that is characteristic of today's Internet is also a critical role-player in the success of MOOCs as developers and perpetuators of communities of practice. Successful participants, for example, may go on to serve as international and intercultural hubs from which accurate, professionally-conveyed information can flow outward to various peripheries. In addition, the multicultural nature of MOOC audiences may also serve as a mechanism for improving the professional practice of archaeology, in part by creating a feedback loop via which practitioners can be exposed to viewpoints and cultural interpretations that might not be commonly considered.

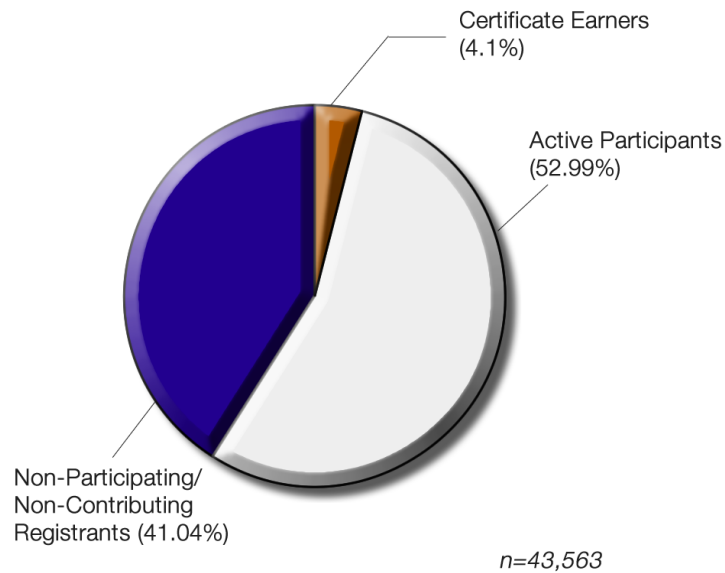
Now, of course, we come to the most often voiced criticism of MOOCs – the abysmal “retention” and “completion” rates they boast, and the correspondingly low percentage of total registrants which goes on to earn a certificate at the end of each learning experience. The outsized attention paid to these data points, though, only reinforces how inapplicable they are to the present space.

In many ways, higher education has remained static for centuries. Our understanding of it is fueled by a shared vocabulary, and by a common understanding of expectations. College courses are formal engagements, which are quarters, semesters, or years in length. They are offered synchronously, with a beginning date, an end date, and a cutoff for registration and honorable withdrawal. They are undertaken by students who have completed an official registration (and payment) process – a process that includes contractually agreeing to participate that course from start to finish, and that lays out the rewards for success and the consequences of failure. In the case of the former, a good grade, college credit, and eventually a certificate or diploma awaits, while the latter offers a negative mark which will remain on the student's transcripts for the rest of his or her life, affecting every other academic undertaking he or she pursues.^{iv}

Viewed through this lens, a combined withdrawal and failure rate of twenty percent would be highly suspect to say the least, while a rate of nine in ten meeting this description would rightly be viewed as an unmitigated disaster – a breach of contract by the professor and the University itself. However, in the open online world, where the only barrier to entry is access to an Internet connection and the willingness to provide an email address, this same rule simply does not – and cannot – apply. Terms and concepts like ‘registration,’ ‘retention,’ ‘completion,’ and even ‘course’ lose their traditional meaning, and their application here makes little more sense than using maritime terminology to describe modern interstate travel.

A far better comparison would be other open online resources that offer engagement, track participation and contribution, and pose similarly low barriers to entry and contractual obligations for the user. Let's take a quick look at some basic metrics from the HarvardX MOOC CB22x "the Ancient Greek Hero," a learning experience in ancient Greek culture that focuses on the close reading of both texts and objects.^v

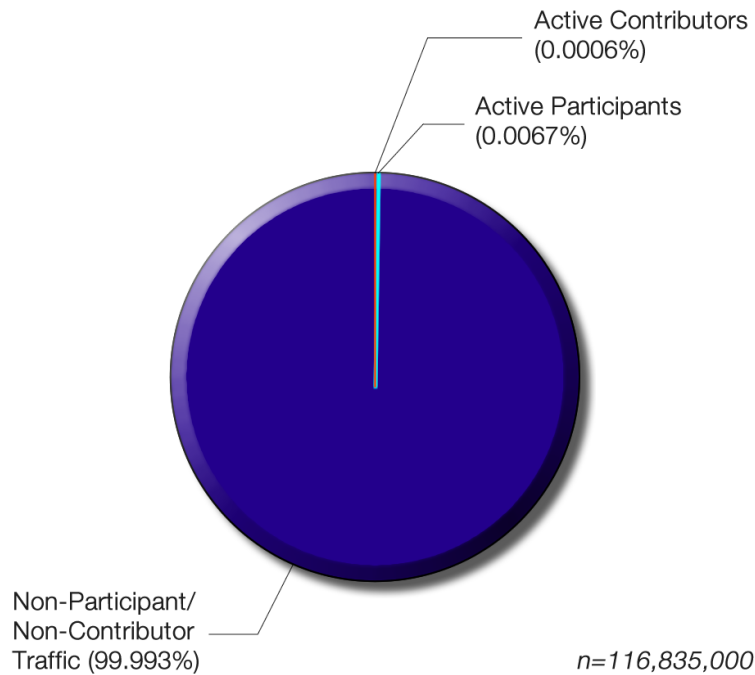
CB22x 'The Ancient Greek Hero' (Spring/Summer 2013)



As you can see, of the slightly more than 43,000 people who registered for this learning experience – meaning that they provided edX with their email address, viewed the CB22x information page, and clicked “register” – a little over 50% actually showed up and participated, and a little over 4% ‘passed’ and earned certificates.

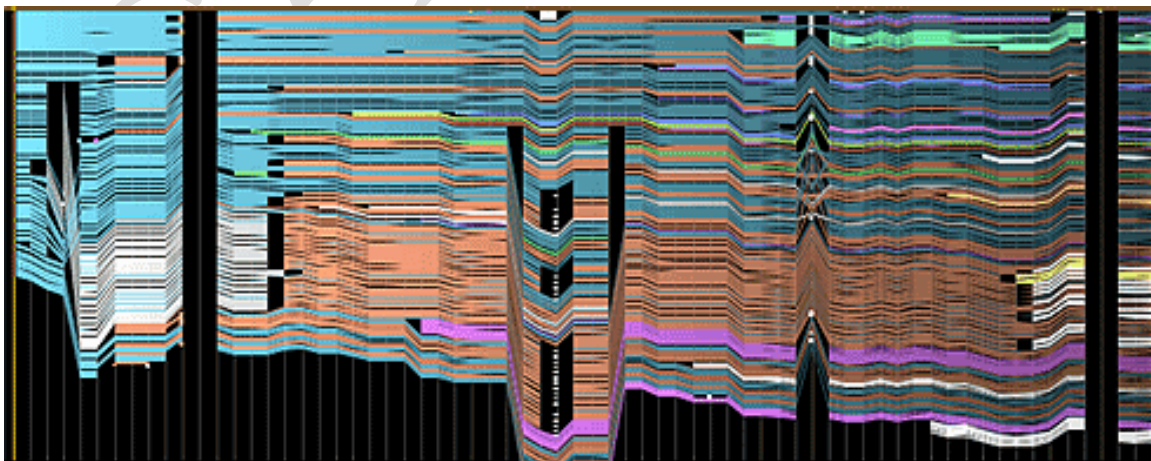
Now let's compare these numbers to an open online community that has certainly affected the way that we as researchers, and the way our students, do business: Wikipedia. Using September 2013 as sample (the most recent month broken down in detail on Wikipedia's statistics page), we see that a little over 116 million people visited the site during this period. Of those, the number of ‘active participants’ – people who made five or more edits to Wikipedia's vast array of articles – was 7,789, or a little under seven thousandths of one percent. The number of active contributors – people who made 100 or more edits – was 778, or six *ten-thousandths of one percent*.^{vi} This leaves 99.993% of visitors to be classified as non-participatory and non-contributory – a statistic which starts to make participation in “MOOCs” sound a little better!

Wikipedia (September 2013)



Now, we know that the seven-thousandths of a percent who actively participates – and especially that seven-ten-thousandths of a percent who actively contributes – can be *very* active in engaging the content and each other. This HistoryFlow diagram of Wikipedia edits by user over time on a single entry shows the level of interactivity that active contributors bring to a subject matter about which they are passionate:^{vii}

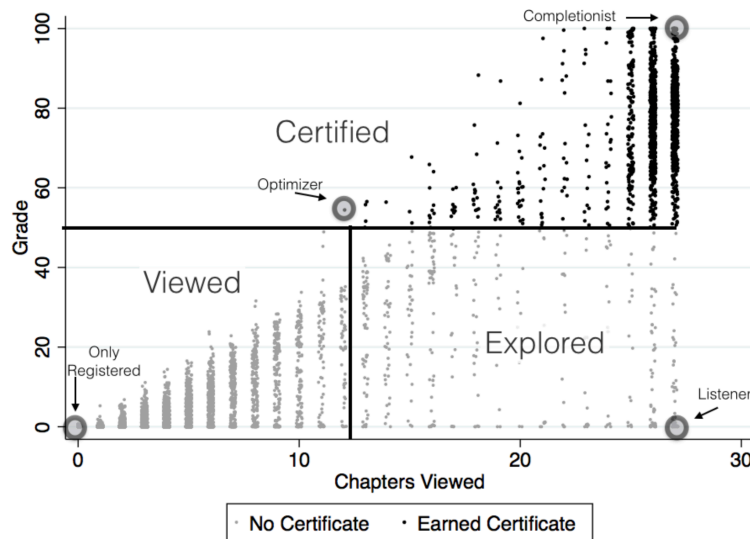
Visualization of Wikipedia edit log for the article “History”



This is by and large the nature of social interactions and interest-based groupings in the online world, and we can see it borne out in MOOCs, as well. The graph below shows the level of

successful engagement with assessment exercises charted against the number of chapters of content viewed within CB22x.^{viii} As you can see, user types – and, we can infer, user intent – covers the entirety of the spectrum, from non-participatory, non-contributing registrant through the learner who viewed every chapter of content provided and aced every assessment. An excellent case in point on the different modalities of engagement available to participants is what we call “the listener,” an identification which at its extreme refers to a participant who engaged with every chapter of content but none of the assessments – in other words, a person who truly came to learn and to interact, but without the desire to ‘earn a certificate.’

CB22x ‘The Ancient Greek Hero’ (Spring/Summer 2013)



This should provide the impetus for our looking at MOOCs in a different light. Rather than “courses” whose “retention” and “completion” rates we count like beans, the significant differences in user intent and modality of participation should be taken into account when creating, running, and evaluating MOOCs.

This is also consistent with the move among some to change C in the acronym “MOOC” from “Course” to “Content,” and to consider these objects for what they might be more accurately described as: massive open multimedia textbooks, with – in many cases – a significant social component to them, which can be leveraged to create both feedback loops within, and hubs for accurate information transmission beyond, these learning experiences.

Finally, the rise of the MOOC has done a great deal to provoke serious thought about just how our field and many others can be properly communicated to a broad, international, and truly diverse population of learners. This will hopefully grow into acceptance and consideration of the multiple modalities of participation that consumers of MOOC content desire, but it has already served as an opportunity to invest in better ways to *tell our story* – in other words, it has spurred investment in better tools and approaches for the conveyance of archaeological understanding and practice, and has

provided a means for interested persons to congregate around the topics that make our field so fascinating, while also allowing them to disseminate that information themselves, within their own circles both online and off.

These tools include, for example, media-rich annotation of all modes of content presentation (text, image, and video), as well as expanded 3D imaging of objects and vastly improved interactive viewers that can be used to engage with objects of all types within our museum and library collections and beyond – along with robust analytics that enable and perpetuate the feedback loops that make MOOCs so special, by allowing for measurement of participant engagement, and thus providing an opportunity to recognize where we need to recalibrate our message. Here are a few examples of those tools.

Further development is underway to shrink not participation in these experiences, but the experiences themselves, so as to create overlap between the multiple modalities of participation that learners wish to engage in. An example of this is a hyper-modular learning experience in the Humanities, which combines archaeology, history, art history, law, music, and several other schools and specialties into a user-directed, interdisciplinary learning experience made up not of a lengthy, “in-or-out” type “course,” but of numerous discrete learning experiences focused loosely on one overall topic – in this case, the history of The Book – which can be arranged into learning paths or engaged with on their own. Each of these discrete learning experiences can, in turn, be engaged with via user-directed paths, in terms of both order and depth.

As I noted in my abstract, the MOOC is by no means a *deus ex machina* that will solve that which ails us all – far from it. However, the fact that we are willingly entering the open online world is both encouraging and worthwhile, and it is made vastly moreso by a willingness to engage in multidirectional dialogue, and to welcome multiple modalities of participation, trusting that those who participate in even a small portion of our learning experiences may take a portion of the knowledge they gained from us and use it positively, both to educate their peers and to combat the false information that abounds on the 21st century web. Further, though no single MOOC will suddenly challenge Wikipedia or any other multi-million-user resource on the web for Internet supremacy, the simple fact is that only by refusing to cede the field and leave the arena will we be able to truly educate individuals – and, through them, the world – about our profession, and about the critical knowledge, context, and information that is necessary to truly understand the past.

Thank you.

ⁱ Source: http://upload.wikimedia.org/wikipedia/en/d/df/Internet_users_by_country_world_map.png

ⁱⁱ “The estimated number of Internet users out of total population. This includes those using the Internet from any device (including mobile phones) in the last 12 months. A growing number of countries are measuring this through household surveys. In countries where household surveys are available, this estimate should correspond to the estimated number derived from the percentage of Internet users collected. (If the survey covers percentage of the population for a certain age group (e.g., 15-74 years old, the estimated number of Internet users should be derived using this percentage, and note indicating the scope and coverage of the survey should be provided). In situations where surveys are not available, an estimate can be derived based on the number of Internet subscriptions” (source: http://www.itu.int/ITU-D/ict/material/TelecomICT_Indicators_Definition_March2010_for_web.pdf)

ⁱⁱⁱ Source: http://www.huffingtonpost.com/2013/11/14/celebrity-death-hoaxes_n_4268875.html

^{iv} Cf. Ho and Reich, “The Tricky Task of Figuring Out What Makes a MOOC Successful” (source: <http://www.theatlantic.com/education/archive/2014/01/the-tricky-task-of-figuring-out-what-makes-a-mooc-successful/283274/>)

^v J. Reich, J. Emanuel, S. Nesterko, D. T. Seaton, T. Mullaney, J. Waldo, I. Chuang & A. D. Ho, “HeroesX: The Ancient Greek Hero: Spring 2013 Course Report,” *HarvardX Working Paper 3* (2014); henceforth “Reich *et al.* 2014”

^{vi} Source: <https://en.wikipedia.org/wiki/Wikipedia:Statistics>

^{vii} Source: <http://hint.fm/projects/historyflow/>

^{viii} Reich *et al.* 2014, fig. 5