

DIGITAL HISTORY AND ARCHIVES AS LEARNING MEDIA TOWARDS TRANSFORMATIVE EDUCATION IN THE POST-PANDEMIC ERA

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ABSTRACT

The end of the 20th century was marked by euphoria over the development of internet technology such as the world wide web, which brought changes to scientific development including accessibility of historical sources and its use. This shift supports new adaptations as well as challenges conventional archival models, while opening opportunities for these digitized documents in history learning. However, the conversion or digitization of archives in Indonesia is slow, let alone its use for education, especially history education. This paper will take some experiences from countries that have digitized archives and adapt them in the history learning process as a real-world & real-time experience. Two countries, the Netherlands and Australia, will be compared to see how they implement these strategies and how Indonesia can adopt a similar model for it. Further, five teacher candidates were involved as informants in interviews regarding their effort to incorporate digital historical sources in the learning-from-home activities. A qualitative approach was used to see the extent to which the readiness of technical and non-technical aspects of the implementation of real-world and real-time-experience learning model in history education. While the review shows how promising the digital history and historical sources in the developed countries is, Indonesia is not ready enough for its usage due to some issues. These challenges will be discussed further.

Keywords: *digital history, real-world learning, real-time experience, learning model, history education*

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INTRODUCTION

The development of information technology in the 20th century has taken place very quickly so that it affects the direction of the movement of the development of science itself. In the study of humanities, the IT approach as a tool and as a methodological framework has given birth to a new family known as digital humanities (Robertson, 2016; Sula & Hill, 2019). This scientific field is an interdisciplinary study that is growing rapidly in universities in developed

countries, especially entering the 21st century. Not only about the excesses of technology and its impact on humanity, the paradigm of thought also has a comprehensive meaning in how science itself is built or produced through the existence of digital devices. As a consequence, history as a part of the humanities enters the same trend, starting from the digitization of old documents, archives, or newspapers, sound or video recordings, which are stored in libraries or national archive centers in the United States or Europe around 1990s (Cohen et al., 2008; Robertson, 2016). This conversion allows the archive conservation process to be more effective and efficient, while also making it easier to catalog and reaccess.

In general, digital history definition falls into three categories: as a genre of historical studies (history related to how digital technology developed); as a way to conduct historical research (methodological approaches); and the historical data in the digital form, whether as the product of current publication or digitization process (see Clarke & Lee, 2004; Cohen et al., 2008; Fridlund, 2020; Hendry, 2007; Seefeldt & Thomas, 2009). Most scholars discussed the term from the methodological perspective. Weller (2012) simply defines it as an impact of digital technology utilization in historical studies. A similar opinion was conveyed by Lee (2002, p. 504) that digital history is

"...the study of the past using a variety of electronically reproduced primary source texts, images, and artifacts as well as the constructed historical narratives, accounts, or presentations that result from digital historical inquiry..."

The development of computer networks in the end of the 20th century encouraged people to apply this technology in various aspects of life, especially data administration. Local Area Networks (LANs) developed in the 1970s and 1980s were implemented in public systems especially in the United States and Europe around the same time. Digitization and computing of data began to be carried out in libraries or archive centers in the two continents starting from the 1990s, making it easier for institutional access and cataloging. Recent development in world wide web technology in the new millennium 2000s also increase the accessibility of this data so that local networks can be upgraded to global connectivity that encapsulate digital data centers from various parts of the world at once (Cohen et al., 2008; Sula & Hill, 2019; Weller, 2012).

According to Lee (2010), the connection of big data and information makes discourses and narratives of the humanities, including history, which for long periods of time have been stored in library warehouses became freely available to the public. Meanwhile, advanced technology also allows people to become historians of themselves. They can offer their own narratives or versions of history by creating personal pages on an internet page that are increasingly cheap and widely affordable. Some of the technologies that can benefit from transmitting information and raw data include flash animation, XML coding, digital video, blogs, and wikis (Seefeldt & Thomas, 2009).

The presence of digital data that is connected in a global database allows anyone to access and use it anytime anywhere, including for research and education purposes. For historians, the presence of an online system, especially with open access, makes historical researches do not always have to be in-person by spend time through dusty archives where we often unable to find the information needed (Cohen et al., 2008; Fridlund, 2020; Seefeldt & Thomas, 2009). With a proper keyword, then at least the system will select for us the related data and notify the storage location. In many developed countries such as the United States, Australia, and the Netherlands, old newspapers, magazines, and journals have been published in full open access. No special permission or application is needed to be able to access this digital history resource (see Table 1 below).

The use of digital sources is substantially meaningful for the field of historical studies as well as history education. If historians are benefitted from the digital sources to make it easier and support their research, in education the existence helps in learning history for teachers and students. For teachers, enrichment of teaching materials in addition to textbooks is very much needed. History as a scientific knowledge aims to cultivate students' critical thinking. If it is conveyed from only one version, the version of the official textbook, the goal would not be fulfilled (Lee, 2010; Nygren, 2014). It needs enrichment from other sources such as encyclopedias, historians' writings, and primary sources so that students know how history is as factual information. The technology also helps teachers to vary learning media in the classroom through the use of images, sound recordings, videos, and old newspapers, whether to displaying its original form or reproducing them into new media such as power points, infographics, or learning videos (Gormly et al., 2019; Seefeldt & Thomas, 2009; Sula & Hill, 2019).

Research conducted by Lee & Molebash (2014) on a digital history investigation project by training teachers to learn the methods and application of digital history research shows the positive influence of technology in improving social studies learning. This seems to support the digital history approach carried out in the Gilliland-Swetland (1999) exploratory study of elementary school teachers attending summer school at UCLA, United States in the 1990s. She underlined how the use of digital historical archives in the classroom increased perception of student-centered learning among the teachers, opening their critical thinking, and scientific mind. It also improved the optimism in integrated multimedia literacy among K-12 students.

The study conducted by Yoag et al. (2012) in Malaysia showed that students' interest in studying history was also related to the impression of sophistication given by the teacher in learning. A survey was conducted of 129 5th grade students and interviews of 5 of their teachers at secondary schools in the East Malaysia region. From this study, researchers reveal several aspects of ICT that are identical to historical learning such as visualization, uniqueness, and demonstrations such as audio that encourage interactive learning. '

In Indonesia, study towards digital history in history learning is still rare. Printina (2017) conducted classroom action research on students taking history courses by applying LMS media and toondoo comics. The results show that the digital learning model is sufficient to stimulate the creativity of the participants. Conceptual reflection from Utami (2020) regarding the potential for developing history learning by utilizing digital historical sources identifies several digital sources that can be utilized at home and abroad, especially for local history learning. However, empirical studies on the use of digital resources themselves are still limited.

Indeed, digital sources come with concern for its impacts. Research on high school students about the use of digital historical archives does show a change in historiographical orientation and historical comprehension. A study in Sweden, a country that requires secondary school students to write historical journals with primary sources, by Nygren (2014) revealed a shift towards quantitative and social sciences approaches rather than qualitative and humanistic sources of traditional physical sources usage. By involving students aged 18 and 19 to write their history journal from digital sources, he sees the student orientation to writing history tends to use numerical data, technical explanation, and report. This is indeed an opportunity because it opens a more scientific form of history with hard facts over subjectivity. But it is also a challenge since it may reduce the element of imagination, creative thinking, even omitting cultural values in its narrative and historiography.

After all, the learning situation in the midst of a pandemic that has forced all aspects of life to put on hold is positioning digital history as an alternative solution that can be utilized in history learning (Clarke & Lee, 2010; Gormly et al., 2019; Utami, 2020). Previous studies have shown that digital historical resources can substitute the sense of loss from teacher-student interactions in the online classroom. Even though the end of the pandemic situation is going to be normalized, educators should be prepared for the advanced digital era of today and the future, not to avoid it but to adapt and integrate. Indonesia's history, which is so rich, priceless and abundant, will be very meaningful if the public can use it optimally, including in meeting the educational needs of the younger generation to be implemented.

This paper aims to explore the dynamics of digital history and historical sources in the world, as well as how they affect Indonesia. There are three questions raised and tried to be answered. First, what has been achieved in the development of history and digital historical sources in foreign countries? Second, how many digital history sources do prospective history teachers know? And third, how is the use of digital historical sources in history learning by prospective history teachers?

RESEARCH METHOD

This research used a qualitative approach with two techniques of data collection and analysis. First, to answer the first question regarding historical developments and digital historical sources in foreign countries, a literature study was carried out

with data interpretation as well as qualitative analysis from Miles & Huberman (1994). For the second and third questions regarding the use of history and digital historical sources, data were obtained by interviewing 5 history student teachers who were selected purposively, under the following criteria: (1) top students who (2) had conducted teaching internship during the pandemic, and identified (3) as having digital literacy level higher than other students based on the researcher's preliminary observations. The interview data were transcribed and analyzed descriptively (Creswell, 2014).

RESULTS AND DISCUSSION

How Are the Current State of Digital History and Digital Historical Sources?

The development of the internet became the initial momentum for the development of digital history. Digital history can be understood as an approach to examine and represent the past using new communication technologies of computers, internet networks and software. The use of technology that gave birth to digital historical sources can be of benefit to historical researchers. Norwich University (2020) describes the digital tools used for digital history:

1. Research, analyze, and visualize patterns in historical information.
2. Present research findings and historical narratives in an enriched content format that is both informative and entertaining.
3. Invite collaboration and enable various audiences to participate in the preservation and telling of stories.

At one level, digital history can also be an open platform for scientific production and discussion involving the development of new material and scientific data collection efforts. In 1998, the government in Maine together with a number of organizations supported funding for the preservation of historical resources related to Maine history into digital historical archives (Clark, 2006). This move was the first to note the government initiative to preserve archives via digitization.

The Netherlands and Australia are developed countries that are concerned with preserving historical sources by digitizing them. The use of technology that gave birth to digital historical sources can be of benefit to historical researchers. Although physically the sources have been eroded by time, the information contained in these sources can be maintained. Historically, the Netherlands and Australia have had close ties to Indonesia which is what makes them possible to approach. Table 1 lists some of the identification results of digital historical sources available in the Netherlands, Australia and Indonesia. These digital resources are more accessible and cheaper than the traditional way by visiting them directly to conduct research exploration. Therefore, digitization is a kind of shortcut (Van Ruyskensvelde, 2014).

Table 1.
Digital Historical Sources in Australia, Indonesia, and The Netherlands

Countries	Sites	Category	Contents
The Netherlands	https://digitalcollecties.universiteitleiden.nl/	U	Archives, photos, books, magazines, newspapers in digital form are stored in the Leiden University library.
	https://www.delpher.nl/	G	Delpher is developed and managed by the Dutch national library in collaboration with various universities, libraries and organizations. The website contains digital text in the form of newspapers, books and magazines about the Netherlands, Indonesia, including the Dutch East Indies.
	https://collectie.wereldculturen.nl/	P	Photos and artifacts related to ethnography in the Netherlands in digital form can be viewed by accessing this website. There is a huge collection because it houses the Museum van Wereldculturen or the National Museum Foundation (Tropenmuseum, African Museum and Volkenkunde Museum) and the Wereldmuseum Rotterdam.
Australia	https://www.nationalarchief.nl/	G	The National Archives of the Netherlands provides digital resources in the form of newspapers, books, archives, magazines and photographs.
	https://repository.monash.edu/collections/show/117	U	Personal archives, educational archives, Asian studies archives. The Sin Po newspaper published in 1923-1941 is available digitally and can be accessed by the public.
	https://www.monash.edu/records-archives/archives	U	Managed by the Australian National University, the public can access digital archives of Pacific research, the National AIDS and the “Noel Butlin” Labor Archives.
	https://archives.anu.edu.au/collections	U	Managed by the University of Queensland, the public can access digital archives specifically related to

Countries	Sites	Category	Contents
	https://trove.nla.gov.au/	G	Queensland history and the Frontiers Wars. Managed by the Australian National Library, collection of newspapers, old magazines, maps and more.
	https://collection.sl.nsw.gov.au/search?search=	G	Managed by the NSW State Library, it has a diverse and comprehensive collection: photographs, government and mass media publications, galleries. Each state has its own library collection site.
	https://nga.gov.au/exhibitions/	G	Managed by the National Gallery, it has a collection of art objects from time to time, including portraits of people, figures in both official and private collections.
	https://www.artgallery.nsw.gov.au/collection/works/?area=australian-art	G	Managed by the NSW State Gallery, it has a collection of art objects from time to time, including portraits of people, figures both official and private collections. Each state has its own art gallery collection site.
	https://www.nfsa.gov.au/collection	G	Managed by the National Archives of Film and Music, it has a rich collection of audio sources in the form of sound recordings of both interviews and broadcasting. Also, film footage from the past related to Australian and world history.
Indonesia	https://anri.go.id/	G	There are virtual exhibitions that are presented based on the timeline. Archived publications already exist but are still in the form of processed, low resolution. Still limited and only options.
	https://khastara.perpusnas.go.id/	G	The National Library of Indonesia provides manuscripts/manuscripts in digital form that can be viewed directly by the public.
	https://lektur.kemendagri.go.id/manuskrip/anri.go.id/	G	There are manuscripts/manuscripts related to religion that come from several regions in Indonesia in digital form.

Notes: U – University / G – Public / P – Private

In developed countries, the role of the government, universities, and the private sector in archival conservation is very visible. Based on Table 1, researchers see that these three categories have been painstakingly digitizing historical sources. Universities that are meant by the status of public and private campuses. While the public means government agencies. Meanwhile, private means private parties such as museums that are managed independently. It was found that the Netherlands is an example of how the private sector (including Church) and universities play a strong role in managing and disseminating digital archives in addition to state-owned institutions such as *Algemeen Rijkarchief*, *Rijkarchief*, *Koninklijke Bibliotheek* assigned to this field. The private museums there (there are at least 120 according to the site <https://www.museum.nl/>) and libraries which used to be private collections, have contributed a lot to the digitization and utilization of documents from the past, including the digitization of artifacts into photographs.

In Australia, the digitization and publication of digital historical archives is dominated by federal and state government initiatives. As shown in Table 1. Both at the national and state levels, the government always has a collection site for at least three institutions: libraries, galleries, and archives. In fact, the federal government maintains a special archive of film and sound recordings in Canberra, whose collections we can access via the internet. Leading campuses, most of which are affiliated with the government such as Monash University, Australian National University, University Queensland, and so on also play an important role in specific aspects such as labor & regional studies (ANU); area studies & personal collections belonging to figures; or local and Aboriginal history (UQ). For Indonesia, efforts to digitize historical heritage are more limited to government institutions such as ANRI, National Library and Ministry of Religion.

Although these three countries have different categories, there are similarities, namely concern on historical heritage. It's just a different starting point and technological progress achieved. Although there is an assumption that digital cultural heritage is at a disadvantage compared to more established cultural assets. Even the cost that is not small is an obstacle to the digitization process. However, Nix & Decker (2021) saw that it could be a business opportunity. Seeing the future of digital history can bring history to exist longer in the world of academics and practitioners. A positive impact is felt on consumers' utility in consuming digital cultural archives online (Lawton et al., 2021).

Digital historians can publish their analyzes on websites, blogs, social media, and online journals. Through digital media tools, digital historians can build dynamic and insightful presentations, such as graphs, charts, interactive maps and even films, to help others visualize historical events. The existence of an archive of cultural heritage in films allows the public to access it (Lawton et al., 2021). Digitization carried out by the government, private sector and universities brings the underlying strategic aspects of historical sources that are vulnerable to damage and loss, which can be proven digitally by future generations. A positive impact is

felt on consumers' utility in consuming digital cultural archives online (Lawton et al., 2021).

Utilization of Digital Historical Sources in History Learning.

The interview was conducted with five prospective history teachers who had apprenticed for internship (PPL) in online learning situations for approximately 6 months in high school. The main question was "During your PPL, tell me about your experience in using digital history resources in the classroom?"

"Yes sometimes, it's just that not many archives are found digitally. So, when compared to digital sources from abroad, I access more digital media outside Indonesia, because there are more historical sources available than digital historical sources published in government institutions (Informant 3, 2021)".

Based on the answers from the informants above, it shows that the limitations of digital archives regarding what Indonesia has, make this teacher candidate explore digital historical sources from abroad. This is supported by another informant:

"It can be a new alternative to make it easier to get one of the important or primary historical sources that were previously quite difficult to access. Thus, efforts to digitize archives are one solution. However, efforts to utilize digital archives in Indonesia are still cloudy or not widely known, especially for history teachers (Informant 4, 2021).

Digital historical sources are an alternative that can be used in online history learning. However, this is still considered new for history teachers. Whereas history cannot be separated from facts that come from primary and secondary sources. According to informant 2 (2021), the following are deemed to require supporting evidence. "Using digital historical sources during learning when supporting evidence is needed for a statement related to the material presented in class". Meanwhile, according to informant 5 as follows:

"By searching for digital sources, the use of new narratives is different from the history textbooks held by students, so learning is not boring. The search for digital sources is carried out in advance so that they can be processed optimally so that the results will be better in implementation. Always be ready for new questions that may arise, because the narrative used is something new for students because it is different from the reading source (Informant 5, 2021)".

Informant 5 reveals that they are accustomed to using digital historical sources because the use of digital historical sources in learning history creates a new narrative. Which is the main attraction in the process of transferring knowledge. The teacher pours digital historical sources into powerpoint media. The material of Indonesian history in schools starting from prehistory, the Hindu-Buddhist period,

the Islamic period, the national movement, around the proclamation to the reformation period has a variety of sources. Informant 3 (2021) argues that

"Efforts are made on historical sources in the classroom. As a teacher, I usually explain the interpretation of the sources presented to students, because the digital source language is usually Indonesian with the old spelling, so it cannot be read or interpreted by students. In addition, if the historical source is in the form of a picture, then I as a teacher explain more about the background of the picture and how the semiotics are drawn. Furthermore, how can the image describe an event?"

The connection with language in historical sources that use the old spelling requires the teacher's innovative efforts in directing students to be able to interpret it. While the source is in the form of an image, for a prospective history teacher to explain the semiotics of the image in order to describe an event. Digital history sources are also used by prospective history teachers (informant 4) to conduct virtual reality tours to archaeological sites available on the Google Arts & Culture website. In addition to streaming historical films. This can be interpreted those prospective teachers already have the skills to package history learning that is interesting for students who live in the present. History is no longer considered obsolete and only lives in the past. Instead, tracing digital history sources using new narratives that are different from student handbooks makes history learning fun and more 'modern'. The student history teacher stated,

"The search for digital sources was carried out in advance so that they could be processed optimally so that the results would be better in implementation. Always be ready for new questions that may arise, because the narrative used is something new for students because it is different from the reading source" (Informant 5, 2021).

Therefore, among prospective history teachers, they thoroughly optimize the use of digital historical sources. The pandemic situation has actually given more space to this digital historical source. The five prospective history teachers carefully use various historical sources in learning including textbooks, articles, archival documents, newspapers, YouTube, films and archaeological sites. These sources were obtained from searches on Google, online library websites, journal websites, institutional websites and private collections.

Optimization of Digital History Resources by Prospective History Teachers

In the midst of a pandemic situation with a learning system from home, digital history sources are easy to obtain due to the availability of internet access, thus helping prospective teachers in the 'heuristic' process of teaching materials. However, the reality is that there are not many historical sources that have been digitized, as new prospective teachers use them only in Indonesian History materials. This, too, is mostly obtained from abroad, such as the Netherlands. These five teachers have used digital history resources during PPL activities. In the

learning process, the first step taken by the teacher is to identify historical sources that support the material and can train students' reasoning power in interpreting. Next, browse online sources, the sources that are often used are videos and photos/images. This is because the teacher sees that on average, adolescent students feel more visually interested and less interested in the written form (script).

Four of the five prospective teachers who were interviewed were investigated for their knowledge of digital historical sources. They know two locations in Indonesia that provide digital historical sources, namely ANRI and National Library. Meanwhile, sources from abroad that have been accessed include Tropenmuseum, Rijksmuseum, Wereldculturen, Gahetna, Universiteitsbibliotheek, and Delpher. Sources from abroad are more due to their availability than domestically. Examples of sources that have been used are photos, newspapers, minutes, books, research results, manuscripts, video documentaries, podcasts, films, letters of agreement, legislation and archaeological sites.

Simultaneously, the five teacher candidates argued that the pandemic situation made digital historical sources have a special position. Distance Learning (PJJ) can connect with students through digital resources that teachers provide via WhatsApp Group, Zoom Meeting, Google Meet and Google Classroom. Students can independently access these resources. There are prospective teachers who argue that if the digitization of historical sources continues. Then history learning resources will be useful for teachers by presenting them in the classroom. In terms of accessibility and physical existence, a source is easily accessible, on the one hand, it is well maintained. The use of these digital historical sources is adjusted to the capabilities of teachers and the availability of internet networks in each school.

For example, one of the prospective teachers took a virtual tour to an archaeological site. It is intended that students gain hands-on experience even in limited situations. Videos, pictures and narrations delivered by teachers are a way to optimize digital history resources. Knowledge and skills in narrating historical stories are important because if digital historical sources have been obtained by the teacher, the teacher cannot convey digital historical sources properly. Then the study of history will remain uninteresting for student and for public in general.

CONCLUSION

Digital history is seen by the change in form to become digital or known as digitization. On the other hand, digital history can also be the result of historians' thoughts published in blogs or websites. In Indonesia, digital historical sources are still very limited. Based on the results of tracing sources in Australia and the Netherlands, there are three categories that have attempted to digitize including universities, the government and the private sector. The five prospective teachers who have had internship experience already know eight historical sources including ANRI, National Library, Tropenmuseum, Rijksmuseum, Wereldculturen, Gahetna, Universiteitsbibliotheek, and Delpher. Australia also has digital history resources

related to Indonesian history material. However, this source is not yet known by prospective teachers. The broad scope of history subject matter provides a challenge for teachers to continue to explore the various digital sources that exist. Connecting the source with the material to be included in the PPT.

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