This is a transcript for Isabelle Lundin et al.'s "The Making of a MAB: Composing a Multimodal Annotated Bibliography and Exploring Multimodal Research and Inquiry," published in *Kairos: A Journal of Rhetoric, Technology, and Pedagogy*, 28(2), available at https://praxis.technorhetoric.net/tiki-index.php?page=PraxisWiki%3A_%3Amultimodal-annotated-bib

TRANSCRIPT: Explaining digital publication and sustainable archive practices to a 5 year old, an audio essay

By Joey Colby, written for Dr. Crystal VanKooten's WRT-4908 Digital Publication course.

What is sustainability?

According to Dictionary.com, Sustainability is a noun which is defined as "The ability to be maintained at a certain rate or level." What are Archives? According to Dictionary.Cambridge.org "An archive is a collection of historical records relating to a place, organization, or family." What does sustainability and archives have to do with the topic of our class? The topic of our class is digital publication.

Digital publication is an umbrella term for anything that has been published electronically. Think about this recording, this recording is a form of digital publication. Think about the JUMP+ or Kairos website. Those websites are both forms of digital publications, albeit both of them and this recording are two different kinds of digital publications. It is a form of digital publication. Multimodal composition is another umbrella term, it is used to describe any work which uses more than one modality. All forms of digital publication are multimodal compositions, but not all multimodal compositions are digital publications.

Digital publication has been a field that has existed since the early 1970's.The goal of this work is to explain what electronic archives are and how sustainability practices work. First, I am going to give a detailed explanation of what both multimodal compositions and digital publications are.

After that, I will explain what electronic archives are. After I have explained what electronic archives are, I will give an example of how a private and public institution worked together to create a large electronic archive. I will explain the process of how this archive was formed, the difficulties it faced and discuss the sustainability practices it employed

The final part of this project will discuss what happens to electronic archives when we fail to engage in sustainable practices. For this project, I have selected 4 studies and one book chapter, each of these sources were created by renowned experts in their field, all having Ph.Ds.

The goal of this digital publication is to teach and explain these concepts to someone who is five years old. Quite simply, if you knew nothing about digital publication, multimodal composition, sustainability practices and creating an archive of digitally published works, this production will bring you up to speed and give you a working and foundational knowledge of these topics.

My first article is entitled Multimodal Literacy: From Theories to Practices. This article was published in the 92nd volume of the academic journal, language arts. It was published in July of 2015 and written by Dr. Frank Serafini. Serafini is a professor at Arizona State University and teaches at the Mary Lou Fulton Teachers College at Arizona State University.

The primary goal of this journal article is to discuss the theoretical framework that is involved in teaching multimodal literacy. The article is pedagogical in nature and the intended audience for this article is English teachers and college professors.

Dr. Serafini gives a clear definition and explanation of what multimodal composition is. Serafini defines multimodal composition on page 412, stating "Multimodal compositions are print-based and digital texts that utilize more than one mode or semiotic resource."

Serafini goes further to explain what the term multimodal event means. On page 417 he explains that a multimodal text is always a particular interpretation which is constructed by readers; this could also be referred to as a punctuated semiosis. Dr. Serafini goes into significant detail about how school curriculum that includes multimodal composition, such as comic books, manga, graphic and illustrated novels have been relegated into an auxiliary role within literature curriculum in place of traditional books and novels.

The conclusion of this article is that there is a necessity to expand the "theoretical perspectives and associated instructional practices which are used to interpret multimodal compositions."

The important thing to take away from the annotated bibliography of this journal article is in the context of how multimodal composition is defined.

So let's define a multimodal composition

"Multimodal compositions are print-based and digital texts that utilize more than one mode or semiotic resource."

Now that we have an understanding of what multimodal compositions are, we can move forward with explaining what digital publications are. This next article does a great job of explaining what digital publications are and will help tie both multimodal composition and digital publication together. Once the shoelaces of both of these are tied, we can begin to

walk into an understanding of the current state and practices of sustainability and archival work of digitally published works.

This journal article was written by Dr. Cheryl E Ball and Dr. Douglas Eyman, both are experts in the fields of writing and rhetoric. This article was published in the 2014 issue of the academic journal, Composition Studies. The title of this article is Composing for Digital Publication: Rhetoric, Design, Code.

Dr. Cheryl E Ball is the director of the Digital Publishing Collaborative at Wayne State University Libraries. She has over 20 years of experience in academic writing and has written dozens of articles and has had works published.

Dr. Douglas Eyman is the Director of Writing and Rhetoric programs at George Mason University. Dr. Eyman is the senior editor and publisher of Kairos: A Journal of Rhetoric, Technology, and Pedagogy.

This journal article is an analysis of the current state of digital publication.The central argument made in this analysis is that most of all composition is digital composition, but that composition studies as a field has not begun explicitly teaching digital composition or the different digital composition processes.

Critical practices for teaching composition are broken down into three different styles of delivery to meet the many different modes and mediums which are used. The three different styles are rhetoric, design and code. These three different critical practices are emphasized as necessary means to teach digital composition.

Each of these different critical practices addresses different facets of digital composition.On page 114, Rhetoric helps tackle the emphasis of the usability, use and usefulness. On page 115, Design addresses functionality, style and organization. On page 116, Code addresses the under the hood aspect of digital composition.

Think of markup and style sheet languages, such as CSS, HTML and XML. While only a three page journal article, both Ball and Eyman elaborate on the large scope of what digital composition is and make the acknowledgement that most of all current composition is digital composition.

The key takeaways from this annotated bibliography is that digital composition is now the predominant form of composition and digital publication. Digital composition is an ever growing and encompassing field and the composition studies (and likely many other academic studies) have not yet integrated digital composition and digital publication into their training. Knowledge of coding is necessary in order to teach that it encompasses.

As we move forward into discussing sustainability practices and archiving of digital publication, it is important to note that markup and style sheet languages play an important role in both. The successful interfaces of web based archives use both markup and style sheet languages. Web coding is becoming more and more integrated into digital publication. Coding and information technology is a key core component of electronic archives and sustainability practices. You cannot have an electronic archive without having knowledge of both coding and information technology.

Before we move on, we do have a sponsor for this project.

HELLO. I AM GOVERNOR ARNOLD SCHWARZENEGGER, I APPEARED IN GREAT MOVIES SUCH AS TERMINATOR AND KINDERGARTEN COP. I AM HERE TO DISCUSS REROOT PONTIAC. ARE YOU INTERESTED IN HELPING ADDRESS MICROPLASTICS IN OUR SOILS AND WATER? DO YOU LIKE CHICKENS? GO TO REROOTPONTIAC.ORG HALUL AND FIND OUT WHAT YOU CAN DO TO HELP OUR COMMUNITY AND HELP PROMOTE SUSTAINABLE GREEN INFRASTRUCTURE. HALUL HAHA REMEMBER REROOTPONTIAC.ORG

Now that we have an understanding of what multimodal composition and digital publication are, let's move into the sustainability and archival aspect of digital works.

What exactly is a digital archive? Is it a form of library science? Is it a part of information technology? What does a digital archive have to do with Dr. Crystal VanKooten's WRT-4908 class? What if I told you that digital archives and sustainability require people with a wide variety of backgrounds?

Matt Cohen wrote a chapter entitled "Design and Politics in Electronic American Literary Archives." The chapter is part of the 2011 book, The American Literature Scholar in the Digital Age. This book was written by Amy E. Earhart and Andrew Jewell and was published by the University of Michigan.

Matt Cohen has a Ph.D from College of William and Mary, he is the co-director of the Walt Whitman Archive, co-director of the Charles W. Chesnutt Archive and an English professor at the University of Nebraska Lincoln.

Dr. Cohen's essay gives us a more narrowed and grounded definition of what archives are for this digital publication. On Page 228, Cohen describes archives as "Projects that present American literature electronically and their associated storage, delivery, and community hosting technologies."

Cohen's writings of community hosting technologies describe them as wide and varied, his examples of community hosting technologies are web interfaces, databases and wikis, such as wikipedia or wikimedia. This particular chapter is about the archiving of American

literacy libraries. However the concepts and ideas presented in this chapter can be transferred into the archival process of any digital publications.

On page 231, Cohen raises the question of how we should regard archives, are archives places that knowledge is created? Or are they just placed where projects are stored and displayed? What about the collaborative nature of digital archives? Such as web collaboration. On Page 421, Cohen goes into extensive detail about the criticisms of his own archive, the Walt Whitman archive.

This criticism of the Walt Whitman archive by Choen includes its usage of extensible Markup Language (XML) and how the coding is unavailable for download. Cohen gives suggestions for what he believes are best archive practices. Some of these practices include the usage of Work IDs in the XML coding. These work IDs function as individual identifiers for the work that someone contributes to the coding

An example of this would be if Arnold HALUL or Joey were assigned an ID, This ID would be part of a public database which displays the changes made to the archive. These changes could be part of the literary article, coding or anything else. If ARNOLD HALUL made an edit to the XML, it would display his ID next to the marked change. This way there is a transparent way to track who has changed what and this helps foster an environment of collaboration.

This is similar to how Wikipedia tracks changes to articles. Cohen emphasizes the necessity for transparency with the relationships between editors and other personnel, and discusses how roles between readers and editors have been redefined in the Web 2.0 era.

While Cohen does explore the labor practices involved, the next article goes into the full detail of the monetary. Personnel and labor aspect of digital archiving and sustainability practices involved in that.

The key takeaways from this annotated bibliography are the idea behind what archives are. Digitized archives are broad concepts that cannot be simply put into a box. Digital archives could be. But are not limited to the forms of databases, interfaces and web collaboration such as wikis.

Now that we know what a digital archive is, let's talk about a real example!

In 1979, Cable-Satellite Public Affairs Network AKA CSPAN was created. The purpose of this network was to televise proceedings of the US federal government. The bibliographic annotation of the next article will give detail into the difficulties of creating a large scale archival project.

The purpose of introducing this article is to give an example of the modern difficulties in large the scale archival of digital publications. This article will highlight some of the difficulties in sustainability from a financial, technological and labor perspective, as well as discuss how a large renowned public research university sustains a digital archive. This article highlights the success in sustaining an archive of over 200,000 hours of televised programming.

Published in the 77th volume of The American Archivist and written by Robert Browning. This 2014 journal article is entitled "The C-Span Video Archives: A Case Study."
Dr. Robert Browning is the director of C-Span Archives and is a professor at Purdue University. He has a Ph.D from the University of Wisconsin Madison, with the thesis "Political and economic predictors of policy outcomes: U.S Social Welfare expenditures, 1947 - 1977."

This journal article discusses the accessibility, creation and preservation methods involved in indexing, transcribing and sustaining a digitized archive of CSPAN. The article emphasizes that there are immediate expenses in the supporting of the tapes and digital equipment involved in the broadcasting and recording of older episodes. These expenses include the need for ongoing personnel that can repair and maintain the equipment and tapes, as well as other personnel who can process the incoming video and keep up with the changes in technology.

This article explains the different archival periods that CSPAN had. These periods are the pre-archival period, Purdue University Analog archival period, the corporate archival period and the current (2014) video archival video period. On page 440, Browning pontificates that "university, national archives, or library are the only organizations to likely have the resources and technical infrastructure to establish and maintain larger analog and digital archives." Browning explains the necessity in indexing and cataloging work and that there are few standards that support the cataloging of off-air videos.

And finally, on page 441, Browning acknowledges that it is not overly difficult to make archives available on the web. However, in order for such an archive to even exist, it is of the utmost necessity to ensure that the technological and critical infrastructure is in place to sustain and maintain the archive.

There are several key findings to take away from this annotated bibliography. In order to sustain a digital archive, there are numerous factors to take into consideration. Careful planning is required. Having an understanding of the financial commitment needed for long term sustainability is key.

This financial commitment means incorporating skilled information technology and audio visual production staff. It is important to note that the CSPAN archive is an extraordinary

case and most archives of digital publication would be of a significantly smaller scale. The archival process for CPSAN began in 1987. The beginning of this archival process was built around storing televised programming on analog platforms, such as VHS and magnetic tape drives. As stated in the article, as technology advanced, as did the methods and infrastructure required to maintain a digital archive. From 1987 to 2014, the CSPAN archival process underwent three evolutions and each archival evolutions utilized different institutions, both public and private.

The current archival and sustainability practices that work today are important to understand as they are the building blocks of tomorrow's digital archival practices. As Cohen explained, the importance of collaboration between editors, staff and users of a digital archive are of the utmost importance. Browning went further to explain the financial, personnel and technological need that is required in order to employ necessary sustainable practices for the maintaining of a digital archive. Without these needs being met, it is impossible for long term archival of digital publications.

The final article in this digital publication talks about what happens when we fail to employ sustainable practices. This article should act as a tell tale warning sign, and with the title of Digital Dark Age, it certainly does invoke a feeling of fear.

Digital dark age sounds like a dystopian offshoot of William Gibson's famous novel Neuromancer. But when approached from a sustainability and archival perspective. What happens when an organization creates a digital archive, but fails to enact sustainable practices? Creating a digital archive requires maintenance. While Browning's article talked about archiving two hundred thousand hours of footage and is a unique case, what about smaller cases? What about the Walt Whitman Archive that Cohen directs? What about digital publication journals such as the JUMP+ and Kairos? What about smaller projects?

A new digital dark age? Collaborative web tools, social media and long term preservation. A journal article written by Jeffrey Stuart in the 44th volume of World Archaeology. This article was published by Taylor and Francis in December of 2012.

Jeffrey Stuart is a professor of digital heritage at the school of Simulation and Visualization at the Glasgow School of Art. Professor Stuart completed his Ph.D in three dimensional modeling of early medieval sculpted stones. Stuart is a known expert in the field of digital preservation.

Stuart's journal article is based on the sustainability archived data. He writes this article from the perspective of an archeologist and discusses the roles that new approaches to archiving data have for sustainability.

One of the central questions brought up by Stuart is How do we ensure that archives are maintained as the rate of technological advancement outstrips current practices? These changes ultimately lead to the loss of data and information. Stuart gives examples on page 556 of how digital data is easily lost.

Some of these examples are: Data corrupts overtime as the object that holds them begins to degrade. Storage formats such as floppy disks, jaz drives become obsolete, which results in the data holding them becoming lost. Software also becomes obsolete and unsupported, which results in programs or digital publications created in these programs becoming unreadable without trained personnel.

As these changes happen, data becomes lost or is expensive to recover. Stuart explains that the goal for archiving data should be built around a decade scale. He gives further tips and asks important questions. What are sustainable methods to keep data in an archive around in 25 or 50 years? What about social media? How do we create long-term preservation and what methods should be considered?

To give an example of how data corrupts overtime is to look at physical objects that hold this data. These objects degrade overtime. Magnetic tape in VHS, Cassettes and floppy disks will lose their data. CDs degrade, especially if improperly stored. Long term storage of data storage devices requires a temperature specific climate. Whether it be CDs, VHS or Amazon Web Servers, each of these require specialized maintenance staff for cleaning, handling and utilizing these data archival devices.

The final question posed by Stuart is, how do we avoid a second digital dark age? Stuart explains that the first digital dark age as an idea. Technology advances at a geometric rate and this advancement outdoes grows the necessary infrastructure leading to the loss of data

This loss of data is due to the fact that technology has advanced to the point where the necessary tools and devices to read this data are unavailable. The new technology and tools will no longer utilize obsolete data storage devices. Think about the how many video games created in the early 2000's will not run on Windows 10 without specialized hardware. As technology continues to grow at a geometric rate, the means in order to read this data through these obsolete devices require expensive and specialized personnel or technology.

How do we ensure that we are engaging in sustainable practices for maintaining a digital archive? How do we ensure that digital publications are going to remain available in a digital archive? The answer to these questions is the conclusion of this presentation.

Archival and sustainability practices require a team. It is a joint effort. When it comes to maintaining a digital archive of digital publications, teamwork makes the dreamwork. We

have to be willing to work collaboratively to ensure that the data we archive is actually being archived in a sustainable way.

Readers of a digital archive should be encouraged to report issues they find and if possible volunteer to help out. Editors and staff who maintain a digital archive should work in collaboration to ensure that both the software and hardware sides are working in conjunction. Some digital archives will not have a hardware side of things immediately accessible, perhaps they use a specialized host and web service. In these cases, it's always important to converse with the web service to ensure that they are sustainably maintaining the data.

We have to be willing to stay up to date with the changes in technology. We have to be willing to get our hands dirty and put in the necessary elbow grease to ensure that digital publication remains readable. At the end of the day, digital publication can be reduced to a simple binary. Ones and Zeros. Those numbers aren't infallible. Data isn't infallible. The key to success with sustainability and archival is collaboration and working together. If we do not endeavor to take steps to ensure long term sustainability of our digital publications, we will enter a second digital dark age.