

**Full Length Research**

# The Practice and Perception of Web Archiving In Academic Libraries and Archives

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The objective of this research is to try to gain a fuller picture of Web archiving activities in libraries and archives at institutions of higher education in Kenya, and the perceptions librarians and archivists have of those activities. A Web-based self-administered survey was sent to multiple listservs, and 205 respondents completed the survey. At the time of this survey, many higher education institutions had not implemented routine Web archiving activities. Although planning and testing was being carried out, these were still in the early stages. The results of this survey reveal that archivists and librarians believe Web sites should be archived, and that cost, support for technology, and lack of trained personnel are some of the factors prohibiting them from doing so.

**Key words:** College and university archives, College and university libraries, Digital Preservation, Electronic Data Archives, Conservation and Restoration, Internet and Web sites.

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## INTRODUCTION

For many institutions, intellectual property has not just gone digital, it has gone to the Web. Things that were previously issued in print are now solely electronic, making it much more likely that the Web version will be the only version. For information producers, dealing with the Web's ephemeral nature has been deemed an acceptable tradeoff for affordances that include broad dissemination and lower initial publication cost. If information professionals want to continue to ensure access to information in a manner consistent with past collections, they will have to archive Web-based materials.

In information science, archival science, and library science literature, the most commonly used term for the

preservation of Web sites is "archiving." This word means different things to different people. For the average technology user, archiving may be the equivalent of simply saving the data. Pearce-Moses, R. (2005) notes that the definition of the word as used in computing is simply "to store data offline". Tibbo, H. (2003) contrasts this meaning with the connotation the word typically has for archivists: "Most popular and computer-oriented usage of the term 'archiving' oversimplifies an involved process and omits any notion of responsibility for the physical and intellectual longevity, authenticity and reliability, and future usefulness of the materials being stored". For the purposes of this study, the primary definition of "archive" from the SAA *Glossary* is used: "To

transfer records from the individual or office of creation to a repository authorized to appraise, preserve, and provide access to those records" (Moses, R. 2005). This ensures that the idea of archiving Web sites includes the enhanced stewardship traditionally associated with archives and libraries. Like the simple term "archive," the process of archiving Web sites can mean different things in different situations.

Fundamentally, to archive a Web site means to copy a Web site to an alternate location for the purpose of using it for reference at a later date. Collecting methods can include the use of a harvester, a software program that follows links on the Web (also known as crawling), saving the data it encounters as it goes. Web sites can also be manually archived using offline browsers or by obtaining a copy of the Web site's files directly from the creator.

The way an institution collects Web sites is often related to its selection method. Brown, A. (2006) describes the three common types of selection methods: unselective, thematic, and selective. The first goes for breadth rather than depth, harvesting entire national domains or even the entire publicly accessible Web. The Internet Archive (IA) and its efforts to collect the Web and make it accessible through the Wayback Machine is the most often cited example of long-term unselective harvesting. The second method, thematic, chooses Web sites based on a predefined topic, creator, genre or domain. These types of archives require more human intervention and appraisal. Finally, selective archiving, similar to thematic archiving, follows most closely with traditional appraisal or selection methods. Web sites are purposefully chosen for inclusion in an archive based on their applicability to that institution's mission and goals. Regardless of collection or selection method, Web archiving carries with it a number of considerations for the archivist or librarian to navigate. Intellectual property; the interconnected and ephemeral nature of the Web; preserving context and authenticity; and selecting high quality materials are just a few.

When looking at the history of production of information, archiving Web sites and other digital objects seems especially relevant for universities and colleges, which not only produce abundant original research, but have also served as centrally located repositories for regional and disciplinary resources. Lyman, P. (2002) in his informal conversations with librarians and archivists have revealed a feeling of trepidation regarding preservation of digital objects in general. This is probably no surprise if these professionals are taking their cue from digital preservation literature. Harvey, R. (2008) points out the tendency of those writing about digital preservation to describe the loss of information in dire and emotive terms, such as comparing our current situation to those on the brink of a "digital dark age". The Internet Archive even uses this term to substantiate their efforts (IA, Why the archive). Picking up on this trend as

well, Tibbo, H. (2003) points out that, in reality, "the questions concerning long-term preservation vastly outnumber the answers". In order to dig deeper into possible reasons behind archivists' and librarians' reluctance to archive Web sites, the study described here asks professionals to reveal their Web archiving experiences as well as the information sources they consult regarding archiving Web sites. Specifically, the following two research questions are addressed: Are librarians and archivists at institutions of higher education currently engaged in or considering archiving Web sites? What sources do these professionals consult for information about Web archiving?

## RATIONALE

The purpose of this research is to gain a fuller picture of the practice and perception of web archiving in academic libraries and archives in Kenya. The study assessed whether librarians and archivists at institutions of higher education are currently engaged in or considering archiving Web sites and evaluated the sources librarians and archivists consult for information about Web archiving. As no extensive research has been conducted in this area in Kenya, the study also fills the gap in the practice and perception of web archiving literature related to this area.

## OBJECTIVES OF THE STUDY

1. To assess whether librarians and archivists at institutions of higher education are currently engaged in or considering archiving Web sites.
2. To evaluate the sources librarians and archivists consult for information about Web archiving.

## RESEARCH METHODS

Self-administered survey was chosen to try to achieve this study's objectives. Surveys have been acknowledged as "excellent vehicles for measuring attitudes and orientations in a large population" (Babbie, 2007). Using the Web to deliver a self-administered survey allowed responses to come in from archivists and librarians in many different parts of the country. Allowing respondents to answer at their leisure also, hopefully, encouraged more survey completions. In contrast to interviews or focus groups, the data gained from a survey provides the desired overview of the subject instead of an in-depth look.

## SAMPLE

The population under study was librarians and archivists at institutions of higher education in Kenya. To facilitate administration of the survey, an announcement was sent to the following listservs to which these professionals subscribe:

### Archivist-Affiliated Lists

- Archives and Records Managers (ARMA) list
- Records and Information Professionals East Africa (RIMPEA)

### Librarian-Affiliated Lists

- Kenya Library Association (KLA)

### Non-Affiliated Lists

- WhatsApp - Archivists
- Web-Archive list
- JSC- Archivists list

The lists above were selected purposefully to try to reach professional members of the population. Three of these lists are associated with two major Kenyan professional organizations for archivists and librarians: Archives and Records Managers (ARMA) and the Kenya Library Association (KLA). The other lists specifically discuss digital materials. It should be noted that, in addition to advertisement via these lists, one of the list members posted the call for participation on her blog ([www.archivesnext.com](http://www.archivesnext.com)). This may have garnered additional participation. The survey questions were defined so that those not working at institutions of higher education in Kenya would be routed to the end of the survey. Still more refinement was built in based on some of the demographic information requested, in order to enable the researcher to focus on responses from the population under study. It is acknowledged that members of the KLA and the ARMA may not be representative of the entire population of librarians and archivists. Further, those who subscribe to the selected listservs may be more technologically savvy and/or more interested in topics relating to Web archiving. Using the lists, however, was a convenient way to contact a large number of geographically dispersed members of the population in an efficient and timely manner, and within the budget and time constraints of the study.

## INSTRUMENT

### Survey administration

The survey instrument was administered using the Qualtrics Web survey tool. This tool was chosen over other Web-based survey systems because of the lack of identifiable data automatically collected by the site. Instructions and definitions for several terms used in the survey were given throughout the survey to help respondents interpret the questions consistently without consulting outside sources (Bourque & Fielder, 2003). The instrument consisted of 15 closed-ended and 3 open-ended questions. Survey respondents had the option of skipping questions they did not wish to answer, and of discontinuing the survey at any time. The survey was available from Tuesday, May 9, 2017 through Tuesday May, 16, 2017.

## RESULTS

Data gathered using the Qualtrics Web survey tool was exported to Microsoft Excel for more detailed analysis. 290 partial or complete surveys were logged. Out of that number, 205 were identified as completed by archivists or librarians working at institutions of higher education within Kenya counties. 55 responses were from those working in archives, and 184 were from those working in libraries. Overall, the most numerous responses came from Nairobi and Uasin Gisu, each with 18 completed surveys. Responses were not received from any of the counties'. When divided by institution type, the geographic distribution of responses was a little different, as can be seen in Table 1.

### Archiving Born-Digital Materials

Generally contrasted with digitized materials, born-digital materials are those that have only ever existed in a digital environment. An example would be a memo composed using Microsoft Word, or a Web site created in .html. Within archives, respondents who stated that their institutions are archiving born-digital materials outnumbered those who claimed their institutions are not. The librarians whose institutions are not archiving born-digital materials outnumbered their archivist counterparts. Table 2

The archivists answering this survey were much more likely to be archiving born-digital materials as part of their own jobs. Only 18% of librarians claimed to be doing so. Overall, those responding to this survey were not as likely to be involved in archiving born-digital materials. Table 3

**Table 1:** Responses, by Institution Type

	<b>Archivists</b>	<b>Librarians</b>
	7	13
	5	13
	5	13
	3	11
	3	10
	3	9
	3	9

**Table 2:** Reported Archiving of Born-Digital Materials, by Institution Type

<b>Archiving of Born-Digital Materials</b>	<b>Archive</b>		<b>Library</b>		<b>TOTAL</b>	
Yes	37	67%	83	45%	120	50%
No	16	29%	66	36%	82	34%
I am not sure.	2	4%	35	19%	37	15%
<b>TOTAL</b>	<b>55</b>	<b>100%</b>	<b>184</b>	<b>100%</b>	<b>205</b>	<b>100%</b>

**Table 3:** Respondents Who Report Archiving Born-Digital Materials in their Current Job, by Institution Type

	<b>Archive</b>		<b>Library</b>		<b>TOTAL</b>	
Yes	33	60%	33	18%	66	28%
No	22	40%	151	82%	173	72%
<b>TOTAL</b>	<b>55</b>	<b>100%</b>	<b>184</b>	<b>100%</b>	<b>205</b>	<b>100%</b>

**Table 4:** Web Archiving Situation, by Institution Type

<b>Web Archiving Situation</b>	<b>Archive</b>		<b>Library</b>		<b>TOTAL</b>	
I do not know if my institution has planned for archiving websites. ( <i>Non-planning</i> )	10	18%	64	35%	74	31%
My institution has not planned for archiving websites. ( <i>Non-planning</i> )	21	38%	61	33%	82	34%
My institution is currently planning to archive websites in the future. ( <i>Planning</i> )	8	15%	17	9%	25	10%
My institution has tested some website archiving procedures. ( <i>Planning</i> )	9	16%	18	10%	27	11%
My institution has implemented routine Web archiving procedures.	4	7%	11	6%	15	6%
My institution has archived websites in the past, but is no longer doing so.	1	2%	1	1%	2	1%
Other	2	4%	10	5%	12	5%
No response	0	0%	2	1%	2	1%
<b>TOTAL</b>	<b>55</b>	<b>100%</b>	<b>184</b>	<b>100%</b>	<b>205</b>	<b>100%</b>

### Archiving Web Sites

Looking at Web site archiving from a programmatic perspective, each respondent was asked to categorize the state of Web archiving at her or his institution. For the purposes of data analysis, responses one and two have both been categorized as "non-planning," and responses three and four have been categorized as "planning."

The majority of respondents (65%) either did not know

whether or not their institutions were planning to archive Web sites, or knew that their institutions had not done any planning to archive Web sites. Only 6% of all respondents knew their institutions to have implemented routine Web archiving procedures (7% of those working at archives and 6% of those working at libraries). Only one librarian and one archivist responded that they believed that their institutions had been archiving Web sites in the past, but had ceased. Table 4

**Table 5:** Records for Archived Web Sites Added to Catalog, by Institution Type

	Archive	Library	TOTAL
Yes	5	4	9
No	9	33	42
I am not sure.	1	4	5
<b>TOTAL</b>	15	41	56

**Table 6:** Method of Accessing Archived Web Sites, by Institution Type

	Archive	Library	TOTAL
I am not sure.	1	10	11
No access - the archive is completely dark.	2	2	4
Only staff can access these websites.	4	9	13
Staff and patrons can only access archived websites on-site.	1	0	1
Staff and patrons can access archived websites both on- and off-site.	4	9	13
Other (Please describe.)	3	9	12
<b>TOTAL</b>	15	39	54

The next three questions asked those whose institutions are archiving Web sites to give details about procedures, including selection criteria, cataloging, and access. Only those who responded that their institutions had tested or implemented routine Web site archiving procedures were given the opportunity to respond to this question. An open-ended question probed for details regarding selection criteria. Responses to this question are listed, according to institution type, and are discussed further below. Adding records to a catalog for an archived Web site is not common, with only 4% stating that their institutions do so (see Table 5). Access to archived Web sites is variable; with no one access method heavily outweighing another (see Table 6). The "other" responses to this question give insight into the range of situations in which institutions find themselves as they continue to refine their procedures.

### Perceptions of Archiving Web Sites

In question fifteen, respondents were asked to select the most compelling reasons for archiving Web sites. They were given a list of nine options, but could also select "Other" and enter an opinion not listed. The four reasons for archiving Web sites that the respondents found to be most compelling, for those working at both archives and libraries, are (1) in order to document history, (2) for future research, (3) information online is within institution's collecting scope, and (4) to protect an institution's intellectual property. 85% of all respondents chose documenting history as a compelling reason to archive Web sites. Only 8 respondents (3%) felt that Web

sites do not need to be archived.

There was more variance between institution types when considering obstacles to archiving Web sites. Those working at archives see lack of support for technology and lack of trained personnel as the top two reasons for not archiving Web sites, while those at libraries cite cost and lack of administrative support as first and second. When considering both institution types together, the top five reasons for not archiving Web sites are (1) cost, (2) lack of administrative support, (3) lack of support for technology, (4) lack of storage space for archived sites, and (5) lack of trained personnel.

## DISCUSSION

### Status of Web Archiving Activities at Institutions of Higher Education

The results of this survey suggest that many academic archives and libraries are in the investigation or planning stages when it comes to archiving born-digital objects. Those who works in archives were more likely to state that their institutions are engaged in the archiving of born-digital materials (see Table 3). For file types, more institutions are collecting word processing documents and PDF files than digital objects formatted in a markup language. This mirrors the frequent mention of PDF in the responses to question ten. There is a similar distribution for those who responded that they are archiving born-digital materials as part of their job. Another interesting discovery is that 48 of the 205 (20%) respondents

selected the option "We archive all file types." This may indicate that these institutions have decided not to be selective when ingesting files. Whether or not institutions are doing this because they have decided it is best practice, or because they feel it is safer to take in all types and deal with dissemination issues later, is unknown.

Even fewer respondents described their institutions as having added Web site archiving to their born-digital archiving program (see Table 4). The majority of respondents (65%) stated that their institutions are in a "non-planning stage." These were either unaware of Web archiving plans or activities or knew that none had occurred. 21% are in a "planning" stage, which includes the knowledge of some planning or testing. Only 6% indicated that a routine Web archiving procedure is in place at their institutions. This is striking. Respondents volunteered to complete a survey regarding an activity that, at this point in time, appears to rarely take place on a regular basis. This is even more interesting when considering that the call for participation went to two listservs specifically about archiving Web sites. These professionals are interested in this topic, even if (or perhaps because) it is not a routine part of their institutions' activities. When broken down by institution type, a greater percentage of respondents stated that their archives are in a planning stage (31%, compared with 19% for libraries). The following table looks at Web archiving among those institutions currently archiving born-digital materials. Many still are in the non-planning stage compared with a planning stage or implementation. (see Table 10)

From these results, it appears that even those who have ventured into archiving born-digital materials, whether systematically or on an ad hoc basis, are still not targeting Web sites. Those who are simply testing have not yet implemented a routine program.

Even without routine programs in place, respondents were able to give a picture of some of the Web archiving procedures their institutions have used to date. Of the 50 answers to question ten, an open-ended question seeking selection criteria used when archiving Web sites, 24 respondents mentioned the use of selective collection criteria. Thematic (choosing Web sites based on a predefined topic, creator, genre or domain) and unselective (harvesting for breadth rather than depth) criteria are much less prevalent, with 2 and 1 responses, respectively. University- or college- created sites are of highest interest, with 20 of the 27 collecting institutions listing that as their sole or primary interest. These answers show that institutions are looking to safeguard their own content in a Web archive before looking further. This instinct may grow out of the mandates that many college or university archives have, requiring them to house and give access to their own institutional records and publications, and the long tradition of their library counterparts to support the curriculum and faculty. Staff

members at some of these institutions are applying the same collection criteria to Web sites that they use for print or other electronic materials. As is true with other materials, when information is "going to go away" or is at "risk of disappearing," the collectors have been spurred to act. A few also mentioned obtaining permission from the rights holder(s) before archiving. It is unclear whether or not obtaining permission extends to sites produced by their own institutions, or if these comments were in reference to external sites. Few are archiving Web sites on a routine basis, which accounts for the small number of responses to questions eleven and twelve. Most who are do not add records to their catalogs or give full access to archived sites at this point in time (see Tables 5 and 6). The emerging nature of Web archiving is reflected in some of the comments entered as a response to question 12, such as "under development," "still evolving" and "we're still investigating." Out of all of the reasons the respondents felt were most compelling for archiving Web sites, the one chosen most often was to document history (see Table 7). This awareness of historical value may stem from the fact that a number of institutions of higher education are some of the oldest institutions in the nation. When comparing archives to libraries, respondents from archives more highly ranked the fact that the site falls within the institution's collecting scope, and were more likely to select "to keep up with new technological developments in archiving." These selections may have been due to the phrasing of these choices: archivists may be more familiar with the term "collecting scope" and may have resonated with the idea of archiving technology. Similarly, those from libraries privileged protecting intellectual assets, a term possibly more familiar to librarians who actively preserve scholarly communication, supporting the work of their faculty members. The idea of having a Web site available for future research or for legal purposes was considered similarly important regardless of institution type. Out of all 205 respondents, only eight stated that they do not feel Web sites need to be archived. Even though so few feel that Web sites do not need to be archived, so many are not yet doing so on a regular basis, signaling the gulf between the ideal and current practice.

The overall top five choices for reasons prohibiting archiving Web sites were tightly clustered (see Table 8), with a considerable difference between choice five and choice six. Cost ranked first for librarians and third for archivists, although it can also be tied into some of the other selections. When considered by institution type, archivists were more concerned with lack of support for technology and lack of trained personnel. These archives may be dependent on a parent department for technology support or, with fewer personnel, may find it more difficult to cover all desired tasks. Few libraries or archives consider redundancy of information as a reason not to archive Web sites. Only 11 felt as though other

**Table 7:** Compelling Reasons for Archiving Web Sites, by Institution Type

Reasons for Archiving Web Sites	Archive		Library		TOTAL	
In order to document history	47	85%	156	85%	203	85%
For future research	41	75%	122	66%	163	68%
Information online is within an institution's collecting scope	42	76%	94	51%	136	57%
To protect an institution's intellectual assets	25	45%	102	55%	127	53%
Information online may be needed for legal purposes	20	36%	73	40%	93	39%
Charged by legal mandate, such as public records law	14	25%	61	33%	75	31%
To keep up with new technological developments in archiving	17	31%	22	12%	39	16%
For novelty	4	7%	10	5%	14	6%
Other	4	7%	4	2%	8	3%
I do not feel that websites need to be archived.	0	0%	8	4%	8	3%

**Table 8:** Compelling Reasons for Not Archiving Web Sites, by Institution Type

Reasons for Not Archiving	Archive		Library		TOTAL	
Cost	29	53%	115	63%	144	60%
Lack of administrative support	30	55%	106	58%	136	57%
Lack of support for technology	39	71%	96	52%	135	56%
Lack of storage space for archived sites	27	49%	102	55%	129	54%
Lack of trained personnel	36	65%	90	49%	126	53%
Information available on the Web can be collected in other ways	8	15%	38	21%	46	19%
Outside the institution's collecting scope	7	13%	19	10%	26	11%
Other	6	11%	20	11%	26	11%
Other institutions are taking care of this	0	0%	11	6%	11	5%

institutions could be counted on to take care of archiving Web sites (and three of those 11 had responded that they do not feel Web sites need to be archived). These professionals either do not feel inclined to shift the responsibility, or they recognize that, despite the necessity, no one is adequately fulfilling this role.

### Information Seeking about Web Archiving

A good proportion of respondents to this survey were not engaged in working with born-digital materials (40% in archives and 82% in libraries). In terms of generalizability of the survey's findings, this is important: it means that the opinions of those who do not archive Web sites as a part of their jobs are represented. 109 respondents stated they had not sought information regarding archiving Web sites. Those who had sought information turned most often to journal articles, conference presentations, or individual archive Web sites. Listservs also figured in

prominently to this list (although this may be due to the fact that the survey was advertised via listserv). Staff members either at the respondent's institution or elsewhere were consulted frequently. Less cited were resources devoted solely to digital materials or archiving Web sites, such as the Preserving Access to Digital Information (PADI) initiative, the International Internet Preservation Consortium (IIPC), or the International Web Archiving Workshop (IWA). Respondents, because of their unfamiliarity with the subject, may be unaware of or less familiar with these targeted resources.

Workshops and seminars/webinars ranked higher as resources the respondents would consult in the future than they did as previously consulted resources. As institutions progress into or through a planning stage, these more targeted and hands-on vehicles for information may be more appealing. The top three resources librarians and archivists would consult aligns closely with those they have consulted in the past: journal articles, individual Web archive sites, and staff at other

**Table 9:** Resource Choices, Weighted, by Institution Type

Resource Choice	Archive	Library	TOTAL
Journal articles	532	922	1454
Individual Web archive websites	590	614	1204
Staff at other institutions	312	714	1026
Seminars or webinars	382	476	858
Staff at your institution	290	554	844
Conference presentations	272	492	764
Workshops	264	456	720
Listservs	162	456	618
PADI Initiative	140	376	516
Other websites	80	382	462
Blogs	72	256	328
Books	46	276	322
IIPC	90	220	310
IWAW	80	214	294
Magazine articles	26	102	128
Other(s) (Please describe.)	10	14	24

**Table 10:** Status of Web Archiving Activities among Respondents Whose Institutions are Archiving Born-Digital Materials

Status of Web Archiving Activities	Archive	Library	TOTAL
I do not know if my institution has planned for archiving websites.	5	23	28
My institution has not planned for archiving websites.	13	21	34
My institution is currently planning to archive websites in the future.	6	8	14
My institution has tested some website archiving procedures.	8	14	22
My institution has implemented routine Web archiving procedures.	4	10	14
My institution has archived websites in the past, but is no longer doing so.	1	0	1
Other (Please describe.)	0	6	6
No response	0	1	1

institutions. Although "staff at your institution" was more often chosen as a first choice, when weighted (see Table 9), staff at other institutions ranked higher. This may mean that respondents feel the expertise lies elsewhere, as they did when citing lack of trained personnel in question sixteen.

## RECOMMENDATIONS

It is conceivable that as soon as the first Web pages started going online, archivists and librarians began considering how they would capture that information. But to what extent have considerations progressed to action? To date, there is no published survey that focuses specifically on Web archiving initiatives at academic libraries and archives. There are, however, a number of surveys of digital preservation initiatives in general.

## CONCLUSION

The rise of the World Wide Web and its widespread use by the public is generally traced back to the 1993 release of the user-friendly Mosaic browser (Campbell-Kelly & Aspray, 2004). With such a recent birth, the body of literature on archiving Web sites, compared with archiving print materials, is in its infancy. A review of the literature shows that there are few resources available that help sketch the picture of Web site archiving at institutions of higher education, let alone how librarians and archivists, who may or may not be engaged in archiving Web sites, view the activity. Many sources deal with a broader spectrum of digital objects, of which Web sites are only a small part, or omit reference to Web sites altogether.<sup>3</sup> Besides anecdotal evidence, no formal studies have attempted to identify the reliable sources librarians and archivists at institutions of higher education consult for Web archiving information. It is hoped that the

results of this study give practitioners and other interested professionals a general, interpretable picture of the Web archiving efforts in which colleges and universities are currently engaged and how archivists and librarians are gathering intelligence regarding archiving Web sites. Although a large number have not yet begun to plan for archiving Web sites, a good many have, with some even testing and implementing Web archiving procedures. Discovering that peer institutions are beginning to consider archiving Web sites may assist information professionals in convincing administrators to increase funding at their own institutions.

Finally, filling in some of the unknowns may help diminish the perceived obstacles that those in the profession feel toward digital preservation in general, and archiving Web sites in particular. It is clear that those who took the time to take this survey feel that archiving Web sites is worthwhile and, possibly, up to their own archives or libraries to undertake. The results of this survey may help develop more effective outreach to and training of those in the profession who need reliable resources on this emerging archival responsibility. Those most concerned with disseminating information on archiving Web sites should be encouraged to publish in journals, offer seminars/webinars, put information on the Web in conjunction with current Web archives, and make themselves available to their peers as these are the resources it seems many will turn to if and when they have questions. It is hoped that librarians and archivists, aware that others are pursuing this activity and offered more abundant outlets for information will be encouraged

to begin the process of archiving the Web-based materials they see as important rather than relegating Web archiving to the realm of the imagination.

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