
Digital libraries of American are useful instructional tools. They make primary source materials available to a broad audience. Teachers can use digital collections to implement holistic learning in their classrooms by using the bridging activities such as online lesson plans. Online lesson plans provide teachers with suggestions of how to use the digital collection materials in their class. This study is a content analysis of eighty-two online lesson plans (OLPs) from six digital libraries focusing on American history for secondary education students. OLPs were analyzed to determine the current characteristics of existing OLPs, how OLPs assisted in encouraging higher-order thinking in secondary instruction, and how considering OLPs can affect the design of digital libraries. Some results show that the majority of OLPs encourage higher-order thinking and support the research process for secondary students.

Headings:

- Digital Libraries -- United States
- Virtual Library
- Educational Technology -- Electronic Records
- Education -- Primary Sources
WHAT MAKES A GOOD ONLINE LESSON PLAN?
A STUDY OF INSTRUCTIONAL RESOURCES AVAILABLE
THROUGH DIGITAL LIBRARIES

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are vast collections and can be hard for the average person to use. Most are designed primarily for use by scholars or researchers whose primary aim is to find and analyze a narrow set of documents for their personal, intellectual use. This is not the case with teachers. Teachers aim to guide learners through cognitive processing of various ideas and concepts (Mayer, Smith, Borgman, & Smart, 2002). While digital libraries are systems that promote knowledge construction, they still need to provide the mechanisms that facilitate teachers’ use of the contents. Many digital collections have been equipped with teacher resource pages and instructional materials to make their contents easier to bring to the classroom. Lesson plans, web quests, digital exhibits, workshops, distance learning and on-line tutorials are among the many instructional outreach activities available through digital collections and libraries. Of these activities, online lesson plans may be the most flexible.

Online lesson plans (OLPs) are lesson plans available from the digital library. Most utilize the digital collection’s resources to deliver research and classroom activities. These instructional resources are different from the others named in that they can be used without total access to the internet. While the research activity may require a networked computer, the instructional activities themselves are performed in a traditional classroom. The OLP instruction is not dependent on the technology as with a web quest or distance learning activity; but instead, it enhances the instructor’s ability by providing a view into the digital library.

Online lesson plans can serve in place of digital reference librarians and finding aids. OLPs can be thought of as curators to a digital collection, organizing and
arranging the groups of materials to give them a context and a meaning for instruction. OLPs align digital library documents to the curricular standards and educational goals of the instructor.

Examining OLPs provides more insight into the ways educators might engage digital libraries. This study seeks to highlight the different forms of online lesson plans currently available on the internet. Understanding how OLPs are comprised can assist designers in crafting OLPs and digital collection outreach materials that complement instruction as well as influence design decisions. Understanding what users of OLPs ask and expect from digital libraries can help guide some of the design decisions of digital libraries.

**Background: The Role of Digital Libraries in Instruction**

Since the 1960s, educators have looked at computers as a major solution to instructional problems. As early as 1970, the computer was seen as a way to assist educators in the instructional task (Zinn, 1970). The problems this potential solution created were already known by then. While computer programs could help to improve instruction, developing these programs is too complex, time-consuming and expensive for teachers to do themselves. On top of that, disseminating teacher resources was recognized as a major problem (Edwards and Dusseldorp, 1972). The World Wide Web solved dissemination problems yet the issue of developing effective computer aided instruction remains to this day.

Digital libraries are designed for scholarly use and organized to make subject
specific materials available to scientists, scholars, and researchers; however, this arrangement is difficult for elementary and secondary school teachers seeking to make use of digital collections in classrooms and even more difficult for student use. Students do not yet have the skills required to effectively use materials in the repository (i.e. learners may not know how to make sense of the information). Digital libraries can enhance the learning process by modeling scholarly research for students and helping them critically assess primary materials for themselves rather than subjecting them to regimes of knowledge and skill acquisition (Marchionini, 1994). Instructional use of digital libraries emphasizes the process and practice of a discipline rather than its description (Edelson & Gordin, 1996).

Most digital libraries are built to accommodate scholarly research. The problem with making an expert's digital library available to learners is that the materials are not necessarily accessible. Learners may not know how to make sense of the information. Bridging strategies help learners understand the appropriate uses of available resources and show users how their goals can best be served through use of these resources. Bridging activities should seem natural to learners even as they move learners toward the desired instructional goals. In other words, they should be an artful blend of learner-centered and expert-inspired design (Edelson & Gordin, 1996). OLPs are a type of bridging activity.

Practical and experiential learning is important for several reasons. Professionals call for increased emphasis on inquiry in science education instead of didactic instruction and memorization. The same is true for the social studies and
humanities. Digital libraries serve as a new tool to facilitate this type of learning in information-poor classrooms, yet many digital libraries lack the bridging activities needed to support instruction (Soloway 1996). Teachers are asking for lesson plans and research guides that show them how to use parts of vast digital collections to accomplish common curricular objectives (Tally, 1996). In fact, one of the largest barriers to using digital libraries in the classroom is the lack of teacher time and training in crafting bridging resources for the classroom. In a study by McClusky (2003), a majority of the teachers asked for simple, customizable lesson plans to be provided along with digital documents. Learner-centered bridging activities can be included in the design of digital libraries to facilitate their use in history instruction.

Digital libraries can enhance the learning process by leading students in the practice of a discipline to learn skills instead of memorizing content (Bell, Davis, & Linn, 1996). Theorists identify this as intentional learning or the use of cognitive processes with the goal of learning. Properly designed computer-based environments are excellent places for intentional learning to occur (Martinez, 1997). Attention to thinking skills and cognitive processes in learning are part of the current paradigm in instructional theories like constructionism or holistic learning which stress the importance of students being active learners. This is primarily accomplished through collaborative learning and community knowledge-building, where students can share and refine their ideas with others (Hoagley & Bell 1996). Activities such as discussions or debriefings, presentations, simulations and critical analyses are important for holistic learning.
OLPs can help students develop particular cognitive processes, especially higher-order thinking skills that require a deeper engagement of the student with the material. These higher order skills include analyzing, evaluating, recognizing bias and contradictions, and weighing the significance of evidence presented by different sources. Higher order processes can be encouraged by the instructional use of digital libraries (Shiroma, 2000; Archer, 1998). For this reason, the study will identify which OLPs evoke higher order thinking skills.

The bridging activities discussed in this study are limited to classroom lesson plan activities and do not include the showy, multimedia instructional programs that tend to attract so much attention. There is little evidence that dynamic presentations enhance student understanding and students rarely take advantage of the full functionality of programs (Pane, Corbett, & John, 1996). In addition, educators who incorporate a digital library into their classroom instruction are interested in group activities, content, and functionality that support their individual instructional goals (Hill, Dolin, Frew, et al, 1997). Multimedia activities may not be accessible to a group or fit as easily into the instructor’s goals.

In this study, online lesson plans are treated as artifacts of the research experience by specific types of users for directed tasks. These kinds of artifacts can help answer several main research questions.

1. What are characteristics of existing OLPs? A content analysis of a sample of online lesson plans will highlight some of the common features of web lesson plans.

2. What are the major characteristics of OLPs that support higher-order
learning? A consideration of OLPs that claim to support high-order thinking will identify the activities that foster advanced cognition.

3. How can the OLPs influence the design of digital libraries? By analyzing the content of these resources, it is possible to find ways in which the digital library can be used and designed to better support the research experience.

**Study Methods**

This study examines a sample of OLPs from several digital collections to determine the current format of OLPs, how higher-order learning is engaged by OLPs and how OLPs help to support the research experience.

**Study Sample**

Eighty-two online lesson plans were gathered from six different digital libraries. For the purposes of this study, only digital libraries focusing on American history were included. Each of the digital repositories specializes in the history of the United States and is freely available on the World Wide Web. US History lesson plans were chosen for several reasons. Several studies of digital libraries have focused on science-related web sites, while few studies have focused on the digital libraries of history. As the social studies curriculum has become more regimented and teachers more accountable for covering specific content, digital history repositories present an opportunity for teachers to find and make use of a variety of relevant historical content to augment their instruction. Studies about teacher resources offered by digital libraries
with historical content may help increase our understanding of how teachers use digital resources.

The six digital libraries included were selected to represent a variety of different digital libraries focusing on American history. All of them are supported by respected organizations and maintain a high level of quality. OLPs from the following digital libraries were included in the study.

_Africans in America_ <http://www.pbs.org/wgbh/aia/partner/21gfocus.html>

This small digital repository is a production of WBGH interactive for PBS Online. It is a small collection designed to augment and enhance the 1998 video series, _Africans in America_. It consists of document excerpts, biographical sketches, primary and secondary resources and photographs included and referred to by the video.

_Africans in America_ teacher resources, like other PBS resources, are explicitly designed for educators. PBS has a history of developing digital collections in which educational materials exist alongside its video productions. Four to six teacher resources are included for each of the four video segments. Teacher resources are also available in a print version of the learning materials. The lesson plan activities align the material of the video with curriculum standards. _Africans in America_ lesson plan activities serve as unique models for the study of OLPs because the collection is specifically designed to assist instruction.

_American Journeys_ <http://www.americanjourneys.org/teachers/pdfs/gis1.pdf>
This digital library, maintained by the Wisconsin Historical Society since 2003, includes information about the exploration and settlement of the United States. Materials in the collection are selected by an advisory board of scholars to provide equal coverage of all geographical, cultural and chronological information. The two lesson plans provided online are samples from a printed teacher’s resource designed to be used with the collection. These represent more “traditional” lesson plans of the type available in print form from museums and educational institutions. Teacher resources were compiled through a joint effort between the Wisconsin Historical Society and National History Day.

*American Memory* <http://memory.loc.gov/ammem/ndlpedu/lessons/00/voices/index.html>

This web site is designed to help educators make better use of the *American Memory* collections to teach history and culture. This is one of the largest collections of OLPs in the study. It also represents an example of lesson plans designed specifically to support a digital library and to be used online. There are over 100 lesson plans available on *American Memory* that pertain to high school social studies curricula.


*The Digital Classroom* is an educational outreach program of the National Archives and Records Administration (NARA). This site contains a growing collection
of instructional resources designed to highlight the history and significance of
particular documents that have shaped American history. Activities are provided for
documents ranging from the Apollo Moon Landing to court records of Brown vs the
Board of Education. The Digital Classroom is a digital copy of the document and
suggests several instructional activities that assist teachers in using the document in
class. NARA’s lesson activities follow a looser format than professional lesson plans
and thus serve as another model of OLPs to compare in the study.

Smithsonian Education

<http://www.edgate.com/lewisandclark/lesson_plans/LP_NativeAmericans.htm>

The Smithsonian Education web site is a portal to different educational
resources sponsored by the Smithsonian Institution. These resources tend to be more
like online exhibitions oriented toward the classroom than “traditional” lesson plans.
Activities surround a particular concept or idea, such as exploring Spanish-American
Icons or analyzing issues concerning the Lewis and Clark expedition. Smithsonian
Education resources are delivered via the web site and thus require classroom access to
the computer.

Valley in the Classroom: Valley of the Shadow


The educational resources provided by Valley in the Classroom are sponsored
by the University of Virginia (UVA) Virginia Center for Digital History (VCDH).
These materials correspond to several digital repository collections at UVA, namely the *Valley of the Shadow*, a digital collection built around American Civil War era documents. These resources represent instructional activities designed to take full advantage of the digital environment. These resources attempt to provide as complete an educational experience as possible, utilizing as many curricular, instructional and digital resources possible.

Several guidelines determined which OLPs were chosen from the six aforementioned digital collections. Firstly, OLPs had to be appropriate for secondary school instruction. One goal of secondary school instruction is the development of higher-order thinking. OLPs were studied to determine whether the instructional use of digital libraries can promote higher level thinking skills. OLPs also had to focus on some aspect of American history or social studies. Interdisciplinary OLPs were included if they primarily focused on American Social Studies. OLPs also had to focus on some aspect of American history or social studies. Interdisciplinary OLPs were included if they primarily focused on American Social Studies. Table 1 shows

<table>
<thead>
<tr>
<th>Online Lesson Plan</th>
<th>Number</th>
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<tbody>
<tr>
<td>Africans In America</td>
<td>8</td>
</tr>
<tr>
<td>American Journeys</td>
<td>2</td>
</tr>
<tr>
<td>American Memory</td>
<td>35</td>
</tr>
<tr>
<td>Digital Classroom: National Archives and Records Administration</td>
<td>20</td>
</tr>
<tr>
<td>Smithsonian</td>
<td>9</td>
</tr>
<tr>
<td>Valley In the Classroom</td>
<td>9</td>
</tr>
</tbody>
</table>

*Table 1: Number of Online Lesson Plans from each Digital Library/Collection*
how many OLPs included in the study came from each digital library. A full list of OLPs and their digital collections is provided in Appendix D.

Content Analysis Procedures

After the documents were selected, a set of criteria were developed based on the characteristics of a preliminary sampling of the OLPs and accepted professional standards for instructional plans (Moore, 1995). The criteria were formulated into the questions listed below.

- Are focus/ introduction activities provided online?
- Do focus/ introduction activities require classroom interaction?
- Are introductory Handouts or instructional materials provided online?
- Background information provided independent of the online materials?
- What types of activities are involved in the focus activity?
- How long do focus and introduction activities take?
- Do lesson plans use specific print materials?
- Do lesson plans use specific outside web sites?
- Do lesson plans use the digital collection?
- How many sources are used by the lesson plan?
- How well is the research process supported?
- Are reproducible handouts provided in printable form?
- How long does the lesson last?
- Are there Missing links?
- Is material in a proper lesson plan format?
- Are teacher directions provided?
- Are offline options outlined in the lesson?
- Is the lesson inter-disciplinary?
- What is the primary educational goal?
- Is higher order thinking encouraged?
- Is the lesson explicitly aligned to the National Social Studies Standards?
- Is the lesson explicitly aligned to State Social Studies Standards?

The researcher examined each document, in relation to each of these questions. A spreadsheet was used to record and analyze this data.
Results

What are the characteristics of existing OLPs?

Eighty-two percent of online lesson plans (OLPs) include introductory or focus activities of some sort. These range from students listing what they know about the subject to a full, guided analysis of a digital document from the collection. The level of learning evoked by introductory/focus activities tends to be low, concentrating on comprehension and knowledge levels, but provides a foundation on which to build other skills. Introductory activities are meant to orient and prepare students for the other activities outlined by the lesson. Some introductions asked students to explain what they already knew about the subject of the lesson. Others familiarized students with working in the digital collection, such as explaining how to search and retrieve documents. The introductions of several lesson plans focused on leading students through document and photo analysis before they started the actual lesson plan itself.

While the majority of OLPs had focus or introductory activities, the teacher was still required to initiate and lead the class into the lesson for 86% of OLPs.1 Teacher interventions may include assessing the class's preliminary knowledge about the

1 OLPs that did not mention introductory or focus activities were assumed to require teacher intervention (See Appendix A).
subject, guiding a sample analysis, or presenting background information relevant to the topic. These OLPs do not take over the teacher’s instructional role but, instead, enhance it. Teachers still play the leading role in introducing their students to the activity and developing their skills.

The content of many OLPs goes into more detail than teachers may expect. Information about the content of OLPs can assist teachers in framing and implementing the activities as well as focus students on the lesson’s activities. Background information is helpful for orienting the teacher and even the students to the relationship between the lesson and the historical concept it addresses. Background information can also help supplement teacher knowledge on the subject and assist as he/she introduces the lesson to the class. Fifty-nine percent of OLPs provided background materials that were independent of the online activities. Background materials tended to be published essays or web sites about the subject of the lesson. These materials were independent of the lesson activities and the digital library documents as well. OLPs from the *Digital Classroom: NARA* featured a short focus essay for each of the activities offered. Some background information was located through a link to another page or web domain while in other OLPs, it was situated in the introduction to the lesson itself.

Since digital libraries serve to facilitate research, this study looked at the ways lesson activities supported research and information seeking. Since OLPs tend to focus on research activities, this study looked at the ways lesson activities supported research and information seeking. Handouts and research questions assist learners in developing information skills and performing quality research. 52% of OLPs were deemed to
extensively support the information-seeking process (See Figure 1; see Appendix A for description of how OLPs were scored). These OLPs contained handouts or lists of questions that guided students in analyzing documents and other materials. Some listed the specific materials and highlighted their important parts. Handouts and research questions assist learners in developing information skills and performing quality research. Supporting the information seeking process is important to fostering learning and thinking skills as well as allowing the instructor to focus more attention on content questions than on technical information-seeking skills. Reproducible handouts are provided in printable form in sixty percent of OLPs. Handouts help support the research experience for the student and remove some of the preparation responsibilities from the instructor.

The main research activities of OLPs were appraised as to how they interacted with digital and print materials. Not all OLPs made use of the digital collections that sponsored them. While eight-nine percent of the selected lesson plans used the digital archive wherein they were published, the remainder chose to focus on skills or ideas that could be addressed without the aid of the digital collection. Digital libraries may become general teacher resource centers for ideas and activities about their subject area.
and not just their collections. Only forty-six percent of the sample included references to offline or specific printed text resources to be used for instruction. Offline resources include specific books or articles, student text books, or documents like the Constitution or the Declaration of Independence. The *Africans in America* lesson activities were to be used in conjunction with the video production which is considered an offline resource for the purpose of this study.

OLPs that made instructional use of outside web sites comprised 43% of the sample. These OLPs referred to web sites in addition to their sponsoring digital collections. Outside web sites were used to supplement and complement relevant materials in the sponsoring digital library, provide background information for the study or provide extension activities to the lesson. Smithsonian OLPs covering the Lewis and Clark Expedition asked students to search other web sites for information about Lewis and Clark. References to outside web sites allow a greater engagement with the information environment and encourage synthesis and other higher-order learning. Teachers also expect lesson plans to look a particular way. Formatting OLPs in the proper lesson plan format (see Appendix A) helps teachers quickly assess the important aspects of the instructional plan, such as seeing what the objectives of the lesson are or figuring out what materials are needed for the lesson. Sixty-three percent of OLPs are in the appropriate lesson plan format. Some OLPs that were not properly formatted were missing statements of objectives or were merely listing a variety of activities that can be tried using various digital documents. Evaluation and assessment materials were the item most often omitted by OLPs.
What are the major characteristics of OLPs that support higher order learning?

Choosing the proper level of instruction is very important for teachers in selecting activities for class. Among the OLPs in our study, learning levels are equally distributed across the different learning levels as displayed in Figure 2. OLPs attached to digital libraries have the opportunity to encourage higher levels of thinking and learning. Higher level skills are understood as analysis, synthesis, and evaluation. Of the OLPs studied, 84% were deemed to foster higher-level thinking through the activities and materials they employed and the objectives they stated.

Over half of OLPs in the study were intended to be interdisciplinary by including the curricula of other disciplines. Many OLPs only mentioned that the
lessons could fit into other subject areas but did not explain how they meshed with the curriculum of the other subjects. Interdisciplinary lessons encourage synthesis and help to integrate learning across the entire curriculum.

Online lesson plans not only guide the research and information gathering process, but also provide ideas for classroom activities. The activities recommended by OLPs are designed to reinforce the concepts gathered from the research and help students make use of the information they have acquired. Nearly all OLPs used several of these activities to culminate the instruction. Eighty one percent of OLPs employed debriefing, making it the most widely used activity. Table 2 shows the culminating activities used by OLPs.

<table>
<thead>
<tr>
<th>Types of culminating activities of OLPs</th>
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<tbody>
<tr>
<td>81% Debriefing or Classroom discussion</td>
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<tr>
<td>51% Incorporate simulations of some aspect of the subject- to enhance application and synthesis learning.</td>
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<tr>
<td>41% Called for students to create visual aids. Visual aids help students process concepts using high order thinking.</td>
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<tr>
<td>54% Asked students to orally present the information they had gathered</td>
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<tr>
<td>60% Asked students to write and deliver papers or reports</td>
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</tr>
<tr>
<td>46% Provided some means of assessment or evaluation. Assessments ranged from fully developed rubrics to identifying the aspects of student performance that needed to be assessed.</td>
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Table 2: Types of Culminating activities employed by Online Lesson Plans

*How can the study of OLPs influence the design of digital libraries?*

Teachers will choose lesson plan ideas that they believe will fit into the
circumstances of their classrooms and will meet the needs of their curriculum and students. Activities that address the major instructional concerns of teachers are of more use and provide instructors with ways to make use of the material in digital libraries. In addition, teachers use curricular concerns to determine how to make use of the digital library materials. Comparing OLPs to curriculum requirements helps teachers effectively use these resources in their instruction. Only 45% of OLPs surveyed are aligned to national curriculum standards and a mere 16% of OLPs are aligned to state curriculum standards. Curriculum standards lay out the official instructional goals for teachers. Most teachers are professionally accountable to their state curricula and so would be more likely to use resources that they could easily fit into the curriculum. Aligning OLPs to the curriculum makes them easier for teachers to employ in their classrooms.

Only 19% of OLPs provided offline options for teachers using OLP activities offline. Offline options make it possible for teachers to use OLPs even if they do not have access to computer labs for the whole class. Some activities, like NARAs “Frontiers in Civil Rights,” provide printable documents and images that can be used without student access to a computer. Most OLPs did not use the digital collection, opting instead to list possible classroom activities.

While teachers are the primary audience for OLPs, some 27% of OLPs in the study included student specific directions to guide learners through the lesson. These kinds of lessons can help reduce the amount of preparation required of the teacher and can give the learner a sense of autonomy over his or her learning. OLPs that have
student pages are more like digital exhibits. Teacher responsibility for facilitating this activity may be reduced. These sorts of OLPs are good for instruction by substitute teachers, parents who home-school, and teachers who are unfamiliar with the content of the lesson.

Technical considerations also play a large part in the usefulness of OLPs. Because all the resources are online and technology can be limited at many schools, it is important for OLPs to be fully functional. This study found that only 6% of OLPs had missing links. On the whole, the digital collections that have OLPs are sponsored by well-funded institutions and carefully maintained.

Discussion

What are the characteristics of existing OLPs?

It is important for any instruction to include focus or introductory activities to orient students into the content of the lesson. Most of the OLPs examined were successful in this regard. Introductory activities help to build the skills needed to complete the tasks in the lesson and integrate knowledge attained from the OLP into what they already know. Introductory activities should be closely related to the tasks described in the OLP. For instance, students might be asked to practice analyzing sample photographs or documents in order to build the skills emphasized in the lesson.

OLPs should also emphasize the teacher’s leadership instead of seeking to take over the instruction completely. Each class is different and teachers are knowledgeable about these dynamics. OLPS can give the teacher support in implementing the
activities to his/her class. OLPS are not replacements for the teacher, but offer instructional ideas and content to facilitate the teacher’s instruction, as was exemplified by the OLPS included in this study. Flexibility and content support are vital for teachers using OLPS in their classrooms.

Background information about OLP content is also very useful to the teacher. The majority of the teacher’s daily concerns are administrative and all teachers are not experts on every aspect of American History. Background material about the content of the lesson can help fill the gaps in the teacher’s knowledge so that they can adequately conduct an OLP. Only about half the OLPS examined contained background information, so this is an aspect that needs improvement.

OLPs have the ability to bring materials from digital collections to a wider audience. OLPS that focus on documents in their sponsoring collection can help students practice the skills of a historian. Students can actively engage in the development of historical insights in a guided environment. OLPS can also help to facilitate synthesis by including references to offline content and other Internet resources. References to these sources may be problematic, as a particular print resource may not be readily available. Listing a variety of such outside resources so that the teacher may choose those materials that are available can solve this problem. References to offline materials and other web sites helps students understand that knowledge in a discipline is shared across different institutions and not confined to the digital library alone.

Research skills are vital for a student’s success yet they are often left for the
student to sort out on his or her own. OLPs can greatly assist students in the research
process by providing support and bridging activities to help them conduct the activities
in the lesson, as about half of these OLPs did. Offering research questions or providing
forms or printable handouts to guide the student through the research process helps to
make the digital library content accessible and facilitate holistic learning.

A standard format for the way OLPs look is also helpful for teachers making
use to these resources. Many teachers recognize a general format for lesson plans that
states the objectives and curriculum standards of the lesson, materials needed, a
description of suggested activities and a means of assessment. This format allows
teachers to scan the OLP to see if it is relevant and appropriate to their teaching
environment. OLPs presented in this format are easier to use and implement in the
classroom. Since only sixty-three percent of the current OLPs examined were in this
format, this is an area that could be improved.

What are the major characteristics of OLPs that support higher order
learning?

The activities suggested by OLPs distinguish holistic learning from
memorization and recitation. OLPS activities need to imitate or resemble the types of
behaviors of experts in the field. A simple quiz or test at the end of the OLP does not
encourage holistic learning. Most OLPs (59%) already include some sort of activity
that imitates a “real world” application of the skills conveyed. Written papers and
reports, oral and visual presentations, simulations and group discussions initiate
students into the practices of professional historians. These applications engage the student’s higher-order thinking processes.

The types of activities suggested by OLPs are some of the ways OLPs can help encourage higher-order thinking skills. Most OLPs already encourage these skills by drawing information from multiple documents in the digital collection as well as from offline materials and other related web sites. OLPs can also incorporate other disciplines. There are many links between the language arts, physical sciences, and history. Blending these disciplines together helps to encourage higher levels of thinking as well as integrate the different subjects in the minds of the students. OLPs make the professional knowledge available to experts of the field accessible to students. OLPs provide a bridge for teachers to teach students how to practice the advanced skills of historians.

*How can the study of OLPs influence the design of digital libraries?*

Digital libraries are designed by programs and archivists for historians and researchers. In many cases, teachers were not conceived as users of the collections; however, they make up a large enough proportion to merit the development of educator pages and OLPs hosted by the digital collections. Recognizing that teachers are also users of digital libraries affects their design, and there are particularly important implications for the design of teacher resources and OLPs. One issue relates to how documents refer to other materials within and outside the digital collection to facilitate

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2 Higher level skills are understood as analysis, synthesis, and evaluation.
use by teachers. Another is the inclusion of detailed background information to provide historical and cultural context of the materials in the collection. Both of these mechanisms augment OLPs in ways that are very useful to teaching in applying the OLPs in the classroom. Digital library designers are encouraged to include background information and references to additional materials (both online and offline) in OLPs.

An important concern for teachers is whether they are following the curriculum. OLPs can make a teacher’s job easier by listing the applicable curriculum standards. This helps the teacher choose OLPs that fill gaps in his/her instruction and justifies the use of the OLP in the classroom. Most states have their own curricula, thus OLPs should list separate state standards or list the appropriate national standards.

Another consideration for the design of OLPs is providing adequate directions for the teacher to implement the lesson. Teachers should be the primary audience for OLPs as they must choose the lesson and lead a class through the material. Student specific instructions can be useful and save the teacher time explaining and orienting the class but may require that the student have access to a computer. Many classrooms cannot provide computers with internet access to each student so options for conducting the lesson without student access to the computer are very helpful to teachers using OLPs in their class.

Digital libraries also need to be well maintained to support working OLPs. Technical problems can ruin a classroom lesson. Most teachers are very flexible and can think on their feet. OLPs that provide a variety of options, both online and offline, can help the teacher make quick adjustments in the case of a malfunction.
Conclusion

This study gives an overview of existing OLPS. By understanding some of the common characteristics of OLPs, designers can take instructional issues into account as they design digital libraries to support educators better in the future.

The limitations of this study should be pointed out. First, it was limited in its scope. It could be expanded to include all of the published OLPS at the selected digital collections or to include disciplines in addition to US History. Second, it was limited by being conducted by only a single researcher. Its reliability could be demonstrated by having the sample rated and categorized by a team of people rather than a single person. The study could be extended with a usability test of the OLPS. This would provide evidence of the ways teachers and students really interact with OLPS. The results of a usability study could be compared with the evidence in this study to provide clearer specifications for the design of effective OLPS in digital libraries.

Digital libraries offer a great opportunity to enhance the quality of instruction in secondary education. Digital libraries need educational outreach materials to serve instructional needs. Online lesson plans are one such bridging activity making digital collections as intellectually accessible as they are physically accessible for instruction. This study has identified several traits and characteristics common to existing OLPS. More attention to the ways these traits operate will help digital libraries better serve a broader audience of scholars, teachers and students.
Works Cited


Bell, Philip; Davis, Elizabeth; and Linn, Marcia (1996). The knowledge integration environment: theory and design. Proceedings of the Computer Supported Collaborative Learning Conference (CSCL '95: Bloomington, IN) (pp. 14-21).


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Appendix A: Explanation of Analysis Criteria

Are focus/ introduction activities provided online?

Did the lesson plan include an activity to focus or orient students to the subject or the activities detailed by the lesson?

Do focus/ introduction activities require classroom interaction?

Did the focus activity require a teacher to facilitate or introduce the lesson?

Does the lesson require a teacher to explain the activity or the subject matter or are activities provided online that introduce the activity or subject matter to the student?

Could this activity be initiated without teacher guidance? Could this be used as an activity led by a substitute teacher or home-schooling parent?

Are introductory handouts or instructional materials provided online?

Do introductory activities include handouts or worksheets that can be printed off to support the introductory activity?

Is background information provided independent of the online materials?

Is the lesson accompanied by background material and other information that orients the teacher or student to the subject matter of the lesson? Are resources presented to help the facilitation of the lesson by someone who knows very little about the subject matter?

What types of activities are involved in the focus activity?

What level of Bloom's learning taxonomy is engaged by the focus activity?

This judgement is made by analyzing the type of activity that occurs in the focus
activity to determine the level of learning that is initiated. Introductory activities should fall on the lower levels of Bloom's Taxonomy in order for later activities to build upon what is learned.

**Does it use specific Print materials?**

Does the lesson refer the teacher to a specific printed resource to complete the lesson? Print materials are defined as any information resources that are not in digital form on the internet. Lessons asked for specific texts or requested that students read or consult their textbook, newspaper, etc.

**Does it use specific outside web sites?**

Does the lesson refer the teacher or student to another web site or digital library to complete the lesson? Outside web sites may be referred to by name or hyperlink and are important to the completion of the activity. The OLP facilitates links to the web.

**Does it use the digital archive?**

Does the lesson refer the teacher or student to documents within the digital library? Library documents may be referred to by name or hyperlink and are important to the completion of the activity.

**Number of sources employed by Online Lesson Plans?**

Does lesson draw from one source or many?

**How well is the research process supported?**

This category was scored on a four point scale.

1. *extensively*: Handouts and questions were provided to support the inquiry of the material. Web materials were already retrieved and/ or identified.
2. somewhat: Questions and directions for research were provided but it was assumed that the students have some experience researching or that the teacher will facilitate the research process for the students. Documents may be identified but questions for their analysis may not be present.

3. minimally: The lesson plan instructs students to research a topic in a specific set of documents. There are few or no questions to guide the research.

4. Not at all: The lesson plan tells students to research a particular topic but may not identify any documents or search parameters to expedite the search.

Are reproducible handouts provided in printable form?

Do introductory activities include handouts or worksheets that can be printed off to support the introductory activity?

Are there Missing links?

Are the lesson plans well maintained? Are the links active and lead to the correct place?

Is material in a proper lesson plan format?

Do lesson plans contain the professionally recognized and appropriate instructional elements? These elements include stated learning goals and objectives, descriptions of procedures and activities, and evaluation and assessment methods.

Are teacher directions provided?

Does the lesson plan include instructions to the teacher about how to set up the lesson activity?
Are student/ specific directions provided?

Are specific directions provided online for the student to complete the assignment without major instructional assistance from the teacher?

Are offline options outlined in the lesson?

Does the lesson plan detail options for accessing the digitized instructional materials without access to a computer? Are handouts or printable copies available for teachers to implement the activity without class access to the computer?

Is the lesson inter-disciplinary?

Does the lesson explicitly address the standards of different disciplines?

What is the primary educational goal?

Which level of learning from Benjamin Bloom's taxonomy is the goal of this lesson? The level of learning is determined by noting the verbs used in the objectives. These verbs are compared to a list of verbs recognized to correspond with particular levels of the taxonomy. The list used for this study was Bloom's Taxonomy <http://www.officeport.com/edu/blooms.htm>.

Is higher order thinking encouraged?

Do objectives include higher-order thinking verbs? Higher-order thinking is considered to include the levels of analysis, synthesis, and evaluation on Bloom's learning taxonomy.

Is the lesson explicitly aligned to the National standards?

Does the lesson plan list the applicable National Social Studies Standards?

Is the lesson explicitly aligned to State standards?

Does the lesson plan list the appropriate State Social Studies Standards?

Appendix B : Description of Instructional Activities
Debriefing

Debriefing activities are any activities where the class and teacher verbally interact to assess what has been learned. These include discussions and feedback sessions detailed by the lesson plan.

Presentation

Presentations involve the preparation and delivery of information gathered during research to the class by students.

Visual aid

Are students expected to develop some sort of visual representation of the information they have gathered during the lesson?

Simulation activity

Are students encouraged to imagine themselves in a situation inspired by the subject material of the lesson?

Report/Paper

Are students expected to summarize and expand upon their research via a paper or report that is turned in to the teacher.

Means of assessment

Are assessment and evaluation instruments or ideas provided to the teacher to assist in grading student work and determining whether learning objectives have been effectively met?
### Appendix C: Online Lesson Plans

<table>
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<tr>
<th>Digital collection</th>
<th>Lesson activity</th>
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Records
Administration
National Archives and Records Administration
Telegram from Senator Joseph McCarthy to President Harry Truman

National Archives and Records Administration
The Civil Rights act of 1964 and the equal employment opportunity commission

National Archives and Records Administration
The Many Faces of Paul Robeson

National Archives and Records Administration
The Volstead act and Related Prohibition Documents

National Archives and Records Administration
The war in Vietnam- A story in photographs

National Archives and Records Administration
The Zimmermann Telegram

National Archives and Records Administration
US recognition of the state of Israel

National Archives and Records Administration
Beyond the Playing Field- Jackie Robinson, Civil Rights advocate

Smithsonian
Discovering New resources
Great Grids
http://www.edgate.com/lewisandclark.lesson_plans/LP_DiscoveringResources.htm

Smithsonian
Life on the Lewis and Clark Trail
http://www.edgate.com/lewisandclark.lesson_plans/LP_LifeOnTrail.htm

Smithsonian
Map Mystery
http://www.edgate.com/lewisandclark.lesson_plans/LP_MapMystery.htm

Smithsonian
Native Americans and the Lewis and Clark Trail
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The Intrusion of Strangers
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Smithsonian
The men of the Corp of Discovery
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Why make a Map
http://www.edgate.com/lewisandclark.lesson_plans/LP_WhyMakeMap.htm

Smithsonian
You be the conservator:
Looking at objects inside and out
http://www.americanhistory.si.edu/hosts/santos/TeacherInfoSet.htm

Valley in the Attitudes about slavery
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