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Positively Perplexing E-Books: Digital Natives' Perceptions of Electronic Information Resources

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Abstract

Anecdotal evidence from user surveys and the experiences of information professionals portray a picture that today's students (i.e., "digital natives") do not differentiate between the variety of information resources online. The issue of container only becomes problematic to these students when they have to produce a scholarly work and cite their information sources. Then the question becomes, "What is it?" This paper will present preliminary data from a survey of university students on how they recognize and label electronic information resources. The authors will explore such questions as: Do users recognize an e-book as a book? If not, how do they categorize it? Does the amount and placement of labeling from the publisher make a difference in their recognition? Do they differentiate between an academic database and a search engine? Are a newspaper article and a peer-reviewed journal article considered synonymous?

Introduction/Background

The first e-book proudly raised its head in 1971 with Project Gutenberg (Galbraith, 2011). For libraries, their proliferation began in 1998 with the launch of NetLibrary. But it wasn't until the later 2000s that the big explosion began. Growth in the public libraries was faster, but the academic world was soon catching up. One difference that developed in academic libraries was the number of platforms e-books were available through. For example, the authors' county public library offers e-book access through three different platforms. In comparison, their university has, to date, 32 platforms that provide e-book access and are aware of at least a dozen more available in the market. The authors believe this extensive variety potentially plays a role in the confusion of university students when it comes to recognition.

The first idea for this research germinated when one of the authors was listening to a presentation on ebrary's 2011 e-book survey (McKiel, 2012). The speaker was remarking on their surprise that between 2008 and 2011 e-book usage had actually decreased according to the survey responses. However, ebrary's usage statistics showed that there had, in fact, been a dramatic rise in use over this time period. The author

immediately thought "They don't know what they are using is an e-book." ebrary recognized this and sent a follow-up survey asking two questions. The first was "When you are using electronic resources at your library how often do you know what type of document you are using?" Less than half (47.39%) said "always." This indicates the majority of students have at least some confusion. Years of experience working with university students provides plenty of anecdotal evidence that students don't differentiate between the various online resources. It seems that they don't care what the container is called--until they have to cite it for an annotated bibliography, research paper, poster, or other assignment. Indeed, the second ebrary follow-up question was "Do you care about what electronic document you are using as long as the information is authoritative?" and 53.4% said "no." The authors could give numerous examples of students asking "How do I cite this journal article?" and the first thing the librarian has to do is correct them on what it actually is. This is not a journal article, it is a book chapter, or it is a government report, and so on. This presented the question, what do today's university students, who have essentially grown up with the Internet, call the different online resources? Is everything just a website? Experience has also taught librarians that students

don't often distinguish where they are searching either. When asked, the most common answer is they were searching "online" or maybe they will differentiate and say either "Google" or "the library site." It is rare for them to state a specific database. So another question surfaced, "Is every website with a search box just a search engine?"

The authors wondered if this phenomenon had been noted in the literature, and after an exhaustive search it was revealed that yes, this had been noted in other studies. However, most of the evidence was buried among the comments gathered from surveys or supposed in the discussion section of an article. Some examples of these include the following. Levine-Clark (2006) made this observation when discussing users' awareness of e-books from his e-book user survey:

A small but significant portion of those responding to the survey indicated a degree of confusion about the concept of the electronic book. In several open-ended questions, responses made clear that some respondents confused e-books with e-journals or e-reserves. A question about the specific e-book sources used gave respondents several sources from which to choose and also listed "other" as a choice. Of the 408 respondents who chose "other," 6.4 percent listed either a specific electronic journal or database source or something more general such as articles. An additional 1.5 percent listed e-reserves. Considering that 59.8 percent of respondents indicated some variation of not sure or none, the percent of those confused about definitions could be higher. In the final question of the survey inviting further comments, 2.6 percent of the 457 respondents made clear that they were confused about the difference between e-books, e-reserves, and e-journals. It is hard to draw any conclusions from the limited responses to open-ended questions, but it is clear that some degree of confusion exists between electronic resource types. This blurring of the distinction between book and journal may mean that for some users the

online/print division is more important than the traditional book/journal distinction. (p. 289)

In Croft and Davis' (2010) survey of students' e-book usage, they make the following comment:

One of the most interesting results of the survey was that, from the comments, students did not distinguish between different kinds of online resources: "We were shown during our residency how to access journals and info. Is this the same as ebooks?" "An explanation of what an ebook is would be helpful. I've answered these questions as if they refer to the journals and articles that I accessed through the LRCsite." "I think that I used eBooks. For sure, I searched for articles. For some limited material, I had access to a whole book. I must confess that I am unsure by exactly what you mean by elibrary and netlibrary!" (p. 130)

Shelburne's (2009) study at the University of Illinois Urbana-Champaign also makes this observation:

The open comments on why e-books have not been used are especially interesting and indicate that lack of awareness of the content is clearly a problem. It appears that users may be accessing e-books without knowing that the resources they are using are actually e-books. One concern with the survey is that there is no way to determine how a respondent defines or interprets the term "e-book" and, additionally, what librarians, publishers, and even the broader industry define as "e-book". Further, several of the open responses indicate that some users may not even be aware of any difference between an electronic journal and an electronic book, a phenomenon also noted by Levine-Clark. (p. 61)

Further investigation of the literature revealed a study that had been conducted by the Primary Research Group regarding American college students' use of ebooks. When inquiring about students' awareness of e-books, this study found that nearly a third of respondents were not sure what an e-book was (Primary Research Group,

2009). In reviewing this study and other studies, Soules (2009) remarks:

Many of these issues are as applicable to other forms of e-content as they are to e-books.... When it comes to packages, the process is essentially the same as it is for databases. E-book, e-journal? Users don't care; in fact they never cared, and many only understood book vs. journal in the print world because of the difference in their physical structures. What they want is relevant content. (p. S4)

In light of all these observations, the authors agreed Abram & Luther's (2004) reference to today's users as "format agnostic" is most apt. This "format agnostic" term turns up again in a 2007 British Library/JISC study (Williams & Rowlands, 2007) where they state the following:

Google Generation are format agnostic and have little interest in the containers (reports, book chapters, encyclopedia entries) that provide the context and wrapping for information "nuggets."

This may be true of some young users, but certainly not all. We have not found any studies that address this important issue even obliquely, so we feel this one is still wide open. It is a hugely important issue for libraries and publishers, which makes its neglect in the research literature surprising. (p. 20)

It was for these reasons the authors decided the questions were worthy of in depth study.

Methods

The aforementioned literature review did not yield any study which aimed to identify how students recognized and labeled online resources. The authors began the creation of a survey instrument by identifying the types of resources they wished to use to test the students' perceptions. The final list included each of the following:

- An e-journal article
- An e-journal Title/Table of Contents page
- An e-book front matter from a publisher
- An e-book front matter from Google Books
- An e-textbook front matter from an aggregator
- An e-encyclopedia
- A Wikipedia article
- A video journal article
- A blog post
- An organization's online annual report
- An Abstracting & Indexing database search page (PubMed)
- An Abstracting & Indexing database search page (Proquest)
- A medical website
- A newspaper article
- A library catalog
- A discovery service search screen
- Google Scholar search screen
- A shopping catalog search screen

The questions on the resources were followed by a series of demographic questions as well as a question inquiring about library instruction.

The software, Qualtrics, was used to create an online survey instrument. The authors deliberated on whether to use live links or screen captures. To aid in the decision making and test the instrument, it was piloted with a small group of students (20) and a handful of colleagues. Half took the survey using live links and half using screen captures. The pilot clearly demonstrated that the live link version would be too problematic. It took three to four times longer to take, and respondents said they "got lost" with so many open windows/tabs. Students are a particularly hard population to get to respond to a survey, especially without an incentive which the

authors' institution discourages. To combat this, the authors decided to try a peer-to-peer distribution method. Using research funds available through their institution, the authors were able to purchase two iPads and hire two student assistants to go out in heavily trafficked areas of campus and convince their fellow students to take the survey.

Results

At the time of the Charleston Conference, the survey was still running. The following preliminary results are based on the responses received as of October 25, 2012. A total of 401 people began the survey (answering at least one question). However, data primarily comes from the 393 respondents who completed 90% of the survey. Of note, the students administering the survey were able to provide feedback about the non-completion. They said some students thought it was too long. The average completion time for the survey was 4 to 6 minutes. Of the respondents, 321 were undergraduate students, 64 were graduate students, and 8 marked themselves as "other." Seventy-six percent of the respondents were born between 1990 and 1994.

The wording for each resource question was the same. After each screen capture, respondents were asked "What would you call this?" For the questions showing e-books, e-journals, etc., the answer choices were:

- E-book
- E-journal
- Article
- Website or webpage
- For the questions showing databases and search engines, the choices were:
 - Database
 - Search engine
 - Catalog
 - Website or webpage

E-Books

When respondents were asked to identify different types of e-books, the results were intriguing (Figure 1). Forty-seven percent labeled the Springer e-book title/TOC page as a website as opposed to an astoundingly low 28% labeling it

Figure 1. Comparison of E-Books

Figure 2. Comparison of E-Journals

correctly as an e-book. Two other e-books were featured in the survey, both of which had higher recognition than the Springer book. When comparing the least recognized e-book provider (Springer) to the most recognized e-book provider (Google), the percentage of those who correctly identified the resource rose to 76%. A potential explanation for this discrepancy could be labeling.

The existing Springer interface (at the time of the survey) indicates that the resource is a book in three locations on the page. However, the font is relatively small, and the wording could potentially become lost to the user amongst the cluttered interface. Alternatively, the Google book is dominated by a large book cover image, and among its minimalist text the term “book” appears six times. Between the time this survey was conducted and the Charleston Conference, Springer unveiled their new platform, which features a simplified interface. The authors hypothesize that this could lead to an increase in correct recognition of the resource.

E-Journals

As indicated in the Methods Section, two different e-journals were included in the survey. Correct identification of these resources was almost as confusing to users as the e-books (Figure 2). Just over one third of respondents correctly identified a Science Direct e-journal title/TOC page as an e-journal. The Science Direct e-journal mirrors the structure of its traditional print journal counterpart. In theory, it would be expected that when a user sees volume and issue information, they recognize the resource as a journal. These survey results indicate otherwise.

The survey also featured JoVE, a born digital journal that delivers portions of its content in video format. This non-traditional journal, which instead of a TOC page displays featured articles, was in turn more often labeled as an article (47%). Additionally, 30% identified it as an e-journal (only a slightly smaller percentage than Science Direct). More telling is the fact that less than 20% identified JoVE as a website as opposed to 40% for

Science Direct. Perhaps labeling could be a contributing factor when comparing these two resources. The Science Direct example we used (the journal *Zoology*) potentially lacked the textual clues that JoVE (Journal of Visualized Experiments) has.

Articles

When examining online articles whether from a newspaper, journal, Wikipedia, or a blog, some curious divergences appear (Figure 3). The newspaper article had a significantly higher recognition rate (73%), and the academic journal was recognized as such by only 27% of respondents. This is likely due to the fact that these young respondents have always read newspaper articles online and have been exposed to these types of articles from a very young age. Conversely, these students presumably would not have been exposed to academic e-journal articles until reaching college. In the survey, Wikipedia, another born digital resource, was most often labeled simply a website (66%). Thirty percent labeled it an article, which would be equally correct. When thinking about the newspaper and Wikipedia article, one could surmise that brand recognition as well as high exposure play a significant role.

Googlesque Resources

To test the labeling of online scholarly discovery tools, the survey included questions regarding Google Scholar and Summon (Figure 4). Not surprisingly, the Google Scholar main page was coined as a search engine by 87% of users. This most likely corresponds directly to brand recognition. While Summon was most often termed a search engine (54%), a significant portion of respondents labeled it a database (30%) or catalog (12%). When examining the screenshots used in the survey, the fact that this particular Summon screen has library branding could be a contributing factor to these ambiguous responses. If library providers of discovery services are striving for a “Google-like” experience, they may wish to consider removing labels in this instance.

Conclusion/Discussion

This was an exploratory study. The survey is still ongoing, and there is still much analysis to be done, including comparative analysis. These initial results will be used to refine the authors’ hypothesis and expand the study’s range. Thus far, a few broad observations can be made:

Figure 3. Comparison of Electronic Articles

Figure 4. Comparison of Googlesque Tools

- Users are experiencing container identity crisis;
- To date, there appears to be no correlation with relation to demographics, library instruction exposure, or time spent searching online for school-related projects;
- Correct identification often appears related to brand recognition and/or labeling.

Future Research

Already the authors can envision areas they would like to take this research. Short, mini surveys are needed to counterbalance the fact that many college students feel 5 minutes (the average time to take the current survey) is too long. These mini surveys should group more like items together.

For example, show several e-journals, but they should all have titles “Journal of...” or none. It will be important to further the research using the resources in a live, online environment, and

this will likely have to be accomplished via interview-style studies. It would be interesting to expand the studies to include high school students and compare the difference that exposure to college-level resources may make. It would be interesting to see the role citation management tools can play in disambiguating these resources. Finally, doing multi-institutional studies would improve the statistical significance of results and the authors think it is imperative to partner with publishers and vendors for their perspectives as they develop these resources.

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Appendix A: The eResources Survey

1. What would you call this?

- ☐ A website or webpage
- ☐ An e-book
- ☐ An e-journal
- ☐ An article

2. What would you call this?

- ☐ An article
- ☐ A website or webpage
- ☐ An e-book
- ☐ An e-journal

3. What would you call this?

- ☐ An e-journal
- ☐ A website or webpage
- ☐ An e-book
- ☐ An article

4. What would you call this?

- ☐ A website or webpage
- ☐ An article
- ☐ An e-book
- ☐ An e-journal

5. What would you call this?

- ☐ An e-journal
- ☐ A website or webpage
- ☐ An e-book
- ☐ An article

6. What would you call this?

- ☐ An e-book
- ☐ A website or webpage
- ☐ An e-journal
- ☐ An article

State of Florida	
Nickname(s): The Sunshine State	
Motto(s): In God We Trust	
State without: Florida, Where We Soar into Tomorrow	
Official language(s)	English ⁽¹⁾
Spoken language(s)	English 74.04% Spanish 15.65%(2)
Demonym	Floridian
Capital	Tallahassee
Largest city	Jacksonville
Largest metro area	Orlando
Area	Ranked 22nd in the U.S.
- Total	65,755 ⁽³⁾ sq mi (170,344 ⁽³⁾ km ²)
- Width	381 miles (612 km)
- Length	447 miles (721 km)
- % water	17.9
- Latitude	24° 27' N to 31° 00' N
- Longitude	80° 02' W to 87° 38' W

7. What would you call this?

- ☐ An article
- ☐ An e-book
- ☐ An e-journal
- ☐ A website or webpage

8. What would you call this?

- ☐ A website or webpage
- ☐ An e-book
- ☐ An e-journal
- ☐ An article

9. What would you call this?

- ☐ An article
- ☐ An e-book
- ☐ A website or webpage
- ☐ An e-journal

The screenshot shows the JSTOR interface for an article. At the top, there are navigation links like 'JSTOR HOME', 'SEARCH', 'BROWSE', and 'MyJSTOR'. A search bar is present with the text 'Search: This issue' and a dropdown menu. Below the search bar, the article title 'Cancer Causes & Control' is displayed, along with the volume and issue information 'Vol. 21, No. 10, October 2010'. The article is published by Springer, and the stable URL is provided. On the right side, there are links for 'View Citation', 'Email Citation', 'Export Citation', 'Save Citation', and 'Track Citation'. Below these links, there is a section for 'Your access to JSTOR provided by University of Florida Libraries'. The main content area shows the article title 'Consumption of filtered and boiled coffee and the risk of incident cancer: a prospective cohort study' and a link to the abstract. The abstract text is visible, starting with 'Background Despite potentially relevant chemical differences between filtered and boiled coffee, this study is the first to investigate consumption in relation to the risk of incident cancer. Methods Subjects were from the Vasterbotten Intervention Project (84,603 participants, including 3,034 cases), with up to 15 years of follow-up. Hazard ratios (HR) were calculated by multivariate Cox regression. Results No associations were found for all cancer sites combined, or for prostate or colorectal cancer. For breast cancer, boiled coffee vs. water was associated with a reduced risk (HR = 0.52, CI = 0.20-0.86, P = 0.001). An increased risk of premenopausal and a reduced risk of postmenopausal breast cancer were found for both total (HR = 0.52, CI = 0.20-0.86, P = 0.001) and filtered coffee (HR = 0.52, CI = 0.20-0.86, P = 0.001). Boiled coffee was positively associated with the risk of respiratory tract cancer (HR = 1.61, CI = 1.05-2.46, P = 0.026). A finding limited to men, main results for less common cancer types included total coffee in renal cell cancer (HR = 0.20, CI = 0.11-0.39, P = 0.000) and boiled coffee in pancreatic cancer (HR = 2.51, CI = 1.15-5.50, P = 0.020). Conclusion These findings demonstrate, for the first time, the potential relevance of brewing method in investigations of coffee consumption and cancer risk, but they must be confirmed in future studies.

10. What would you call this?

- ☐ An e-journal
- ☐ A website or webpage
- ☐ An e-book
- ☐ An article

The screenshot shows the Gale Virtual Reference Library (GVRL) interface. At the top, there is a search bar with the text 'Search your library's GVRL holdings'. Below the search bar, there are links for 'Advanced Search', 'Bookmarks', 'Saved Articles (0)', 'Previous Searches', 'Title List', 'Dictionary', 'Help', and 'English'. The main content area shows the title 'Encyclopedia of Sociology, 2001' and a link to the full text. The full text is displayed in a table format, showing the title, edition, imprint, place of publication, publication year, number of volumes, total pages, ISBN, ISSN, format, frequency, language, audience, Gale Subject Headings, LC Subject(s), description, publisher, and address.

11. What would you call this?

- ☐ An article
- ☐ An e-journal
- ☐ A website or webpage
- ☐ An e-book

12. What would you call this?

- ☐ A website or webpage
- ☐ An e-book
- ☐ An e-journal
- ☐ An article

13. What would you call this?

- ☐ A website or webpage
- ☐ A search engine
- ☐ A database
- ☐ A catalog

14. What would you call this?

- ☐ A website or webpage
- ☐ A catalog
- ☐ A search engine
- ☐ A database

15. What would you call this?

- ☐ A catalog
- ☐ A website or webpage
- ☐ A search engine
- ☐ A database

16. What would you call this?

- ☐ A database
- ☐ A website or webpage
- ☐ A search engine
- ☐ A catalog

17. What would you call this?

- ☐ A search engine
- ☐ A website or webpage
- ☐ A database
- ☐ A catalog

18. What would you call this?

- ☐ A website or webpage
- ☐ A search engine
- ☐ A database
- ☐ A catalog

19. I am a _____

- ☐ High School Student
- ☐ Undergraduate Student
- ☐ Graduate Student
- ☐ Other _____

20. What year were you born?

21. Honestly, I spend about this amount of time a week searching online for class-related assignments

- ☐ 0-1 hours
- ☐ 2-5 hours
- ☐ 6-10 hours
- ☐ More than 10 hours

22. I have... (you can choose more than one response)

- ☐ Never had library instruction
- ☐ Had a librarian speak in at least one of my classes
- ☐ Gone to the library for an instruction session or a workshop
- ☐ Received library instruction online (i.e., online tutorial)
- ☐ No idea what these choices mean