

## Information Navigation: Maritime Students and the Library

Are Maritime undergraduates being given opportunities to develop skills in evaluating online information sources? A graduate from any field of study should be able to discern a good source through critical analysis. When a Maritime student graduates will they be able to identify a scholarly work from a source that doesn't possess valid research? Information literacy is a skill that will benefit Maritime students throughout their lives and careers. Comparing and analyzing information is central to creating a meaningful research paper. Being able to navigate through print and web sources is an essential lifetime skill to possess and maritime graduates will need to continually utilize this as the internet grows exponentially.

This study focuses on ten bibliographies from one of the varied research topics that were assigned by Professor Ira Breskin in his Business of Shipping class from the Global Business and Transportation department at SUNY Maritime College in Spring, 2014. This class attempts to introduce the student to "various aspects of the business of water-borne transport of goods and passengers. (College Bulletin, 40) The goal of the paper was to "Research proposed regulations addressing the acoustic signature of a ship's prop (related noise) and the impact that it's having on route planning in North American ports (Boston), as well as those on Europe." The library assembled a blueprint for this topic shortly before it was assigned having received it in advance from the Professor. The aim was to provide students with a starting point for their research.

The Stephen B. Luce library at Maritime College is well equipped with specialty information sources that have strengths in this topic which include databases and journal articles. However, if search results are not refined this can stagger a student by presenting them with an abundance of irrelevant information. This study hopes to help identify how Maritime students conduct searches and provide

some insight into their search methodology. While this study is a good indication of the sources used in the various topics it is important to note that this is a bibliographic assessment and it is unknown to the author on how these sources were utilized in the papers.

### **Literature Review**

Millennials are described as a demographic attributed to people that are currently at College age. This group is integral to this study because they are the aggregated mass of full-time undergraduate students that are currently on College and University campuses. The Pew study reports that the College attendance of each successive generation is growing. “More than half of millennials have at least some college education (54%), compared with 49% of Gen Xers, 36% of Boomers and 24% of the Silent generation when they were ages 18 to 28.” (10 – 11)

The millennial generation have invariably lived adjacent to computers and the web. While a user in this demographic may be adept at playing video games, familiar with web browsers, or extensively connected through social networking their experience is mostly on a user end. This exposure may not help students in developing critical skills or enable them to implement advanced search techniques in scholarly databases.

How do millennials approach research on an undergraduate level? In general, it was discovered that many usually begin with a search engine and afterwards consult scholarly database sources. Google was mentioned in many studies as being the search engine of choice and if a student was aware sometimes applied Google Scholar into their search strategy. Many students fell prey to first page results and did not reform their search terms or modify syntax and misspellings. Students were prone to stop when they found information sufficient for their purposes and skimmed material rather than opting to read an entire article. (Holman)

In a study of nearly 600 undergraduate students, Kim found that “users seem to prefer immediate benefit over long-term investment for a bigger gain.” (186) It is observed that students are prizing accessibility over accurate information and will “neglect source quality in favour of convenience.” (Kim 179) When full-text access is not immediately available it can lead to roadblocks as many students will opt for another source rather than pursue a more scholarly work. A lack of critiquing information sources is evident in Graham’s survey as students were drawn in by “advertising claims, government misinformation and propaganda.” (73) In researching information sources students cited government report summaries instead of an original source. They were also swayed by biased information and advertising claims.

Wikipedia was found to be a major landing point from search engines due to its prominence in result listings. A student in Mizrachi’s study claimed about Wikipedia, “ ‘I know it’s hated but I use it,’ ” (574) this is an indication that many instructors are dismissing Wikipedia as a valid source. “There may be repercussions for instructors’ taking a no tolerance approach to Wikipedia rather than asking students to critically evaluate and confirm information found on the site.” (Colon-Aguirre 395) If a student is asked to evaluate Wikipedia’s sources and be careful with the information cited it may be an excellent exercise in developing critical thinking.

Many students opted for natural language searching in the various studies. While this method may be beneficial in a search engine or Wikipedia it is not always ideal for scholarly databases and can lead to frustration when the approach isn’t supported. Generally, keyword searches led to better results in the scholarly databases. The Porter study found that “very little time was expended by students in developing search terms. Many simply selected a phrase from the task and copied it into the search box.”(276)

Databases that offer academic holdings usually offer very little instruction on how to maximize results and tend to opt for advanced search tools that require knowledge of Boolean and character operators (e.g., +, "", /) to help refine results. "Library databases typically design their own search interfaces based on traditional search approaches (such as Boolean operators, index/descriptor fields and advanced searching), which vary from product to product, and it is often difficult for students to retrieve information in these sources."(Porter 268) These variations however slight can create frustration with a user and may inhibit them from obtaining relevant information and incline them to give up and settle. Students also ran into trouble with selecting databases that would best suit their needs. (Holman 20) It would require many hours of instruction in order to equip college students with the proper abilities to navigate the myriad of databases that large Universities implement and to realize which are best suited for their topics. Colon Aguirre's study mentioned that students asserted frustration with database platforms and with using the library online catalog as well. (395) The more complicated these systems become and as they expand more students may rely more on search engines and Wikipedia rather than consulting the college databases which come at a very high price from vendors.

Fazal's study attempted to assess research skills and information evaluation techniques of Maritime students using standardized testing. Within the results it was revealed that students are having difficulty with advanced searches in the periodical databases and in using print bibliographic sources. (40) In the maritime literature there is still a considerable amount of print only sources available so it essential for Maritime students to still be aware of print sources. It may be several years before there is a stronger online presence with Maritime periodicals but some publications are already available such as Bowditch's "American Practical Navigator", List of Lights, International Code of Signals, Code of Federal Regulations, and Sight Reduction Tables for Marine Navigation. (Constantinou 72) As maritime students embark on their careers they will need skills to evaluate electronic information which

will assist them in locating electronic trade journals, finding shipping financial information and market reviews, and to be informed with current legal information.

### **The Bibliographies**

It is always more challenging for students to conduct searches within a specialized field such as maritime studies because it requires more effort to uncover valuable sources. The libraries at the various maritime institutions are definitely a great place for resources on this specialized field. It is important that the students are aware of this and seek out library assistance to help them navigate towards better sources and to help them to understand why a source is deemed better.

In the analysis of the ten papers the student's bibliographic citations were entered into an Excel spreadsheet. In analysis, only half of the papers had correct citation entries in MLA format although there were still minor errors with the correctly cited entries. Some frequent errors discovered were listing a sole URL link, mixing end notes with bibliography, not alphabetizing sources, and not formatting a second paragraph indent.

On analysis of the sources used it appears that most students veered off topic as they selected sources about the effect on whales that are affected by underwater noise rather than talk about the *proposed regulations* as required in the paper topic. The evidence shows that most students used search engines for most if not all of their sources. Approximately half of the students found two or more good scholarly sources that included sound bibliographies while the latter 50% cited only one scholarly work or didn't have one at all.

Many students found the National Oceanic and Atmospheric Administration web site and used excellent information from it. Another student came close to the International Maritime Organization

source “Noise From Commercial Shipping and Its Adverse Impacts on Marine Life,” but decided to cite a summary that relates to this document. This occurred on multiple occasions when students cited summaries and synopses rather than a primary source. While most of the students found at least one scholarly source a lot of supplementary resources were listed (which are sometimes good because they lead you to the good stuff), although they didn’t look to chase the bibliographies of the good papers they found. These supplementary sources consisted of very brief news articles (sometimes off topic), undocumented blog entries, and web sources without bibliographies. The information provided appeared to drift the topic towards whale ecology and not towards propeller noise and its impact on commercial shipping. While some sources were very good supplementary sources – such as newspaper and magazine articles and activist based web sites the students needed to vet them for bias and evaluate their scholarly content better.

Another interesting observation was that there were patterns indicating the amount of time that was spent researching topics. The majority of the students only listed one or two specific days on their accessed dates. When access dates are listed one or two days apart this gives the appearance that one sat down at a computer and conducted several search engine queries and were satisfied with the results. More effort is needed to produce a quality research paper and sources need to be critiqued more effectively. It is imperative that we instill in Maritime undergraduates the ability to look at things with an analytic eye.

### **Potential Research Behaviors**

With all of this discussion on analyzing research behavior it may be best to try to identify some behavioral theories of motivation, the principle of least effort, and information overload.

For Watters motivation is a key factor in discovering information. If a seeker feels competent, has a set goal, fearing failure as to not “look stupid”, and confident then the results will be of better quality. If a student is unsure of their abilities and this is reinforced by negative feedback it will certainly decrease motivation thusly affecting research outcomes. (243)

Perhaps this is true because in order to learn something we must first admit that we don't know it. It may be harder to admit when you feel that the task at hand is already learned as a student may feel that they know how to “Google it.” Therefore search results could reflect the confidence in one’s effort. If a person lacks confidence in their abilities they may tend to give up easily or absorb information that is instantly available which might complete a task but may not fulfill assignment requirements. However on the flip side - if a person is confident in their searching they will pursue the issue further as they will need to represent their confidence through appropriate confirmation.

According to Case we may be victim of information overload, “When too much information confronts us, we cease to pay prompt and careful attention to some of it.”(98) As could be the example in attempting to navigate large multidisciplinary databases that are authored by different vendors, each having a different search interface. “We treat information selectively, choosing only a small portion of all possible inputs for our attention.” (Case 98) This can lead to omitting relevant info, placing items in queues and forgetting to follow up, and incorrectly processing the information. This process of information overload is very relevant as the internet has brought us closer to not only information we want but everything out there.

The Principle of least effort, Zipf’s principle, can be described where, “in performing tasks (e.g., writing or speaking) individuals adopt a course of action that will expend the *probable least average* of their work – the least effort.” (Case 289) This idea can be applied to information seeking especially in the digital age and could be a reason why libraries are not used to their fullest potential. Although, according to Zipf's principle, isn't he always right? Why put forth more effort than what is required? One

appears to stop searching when they have perceived a satisfactory result “as estimated by himself” (Zipf 7) but has the least effort been approached? The perception of fulfilling assignment requirements will vary from individual to individual and a student could incorrectly perceive that the effort put forth is sufficient while still not reaching the required minimum.

### **Conclusions: how to address?**

Information literacy and analytical skills should continue to be developed among maritime students. With the various licensing programs there are certainly more requirements and expectations of maritime students than an average undergraduate. In addition to the very valuable hands-on training that the students receive it is also important that we also stress critical thinking and introduce students to the world of information outside of Wikipedia and Google. If a person is confident in their search ability they can navigate through the database overload and increase relevant hits. In order to help students strive to find relevant information minimal guidelines should be explicitly stated to help students to avoid minimal effort pitfalls.

In describing the Stephen B. Luce Library information literacy program: “The Library’s instructional program concentrates on three key strategic directions to successfully integrate information literacy in the core maritime curriculum: librarian – professor collaborations, student outreach, and instructional tutorials” (Fazal 34) When a librarian is fluent with curriculum requirements and to the goals of the professor it maximizes library support. Student outreach can be obtained with one-on-one training sessions with the aim to help navigate the library’s resources, introduce them to abstracts, and inform them of inter-library loan services. Many maritime students are not familiar with the Marine Technology Abstracts or the Transportation Research Board’s (TRID) databases which are excellent abstracts and indexes for maritime periodicals. Introducing students to peer reviewed content



and providing them with tools to distinguish advertisements and biased information will help increase analytical skills. Web guides (referred to as libguides) can be published to help give students a good starting point which is the best way to aim for success. We can additionally help students in acquiring information research skills by implementing library orientations and continue to try new search systems (such as federated searching) that support natural language. Most of all the need is practice. The more students are given an opportunity to practice these skills the better they will become.

## **Bibliography**

- Case, Donald O. "Principle of Least Effort." *Theories of Information Behavior*. Ed. Fisher, Karen E., Erdelez, Sandra, McKechnie, Lynne. Medford, NJ: Information Today Inc., 2006. 242 - 246.
- Case, Donald O., "Looking for information: A survey of research on information seeking, needs and behavior." Elsevier Science, 2002.
- Colon-Aguirre, Monica, Fleming-May, Rachel A. " 'You Just Type What You Are Looking For': Undergraduates' Use of Library Resources vs. Wikipedia." . *The Journal of Academic Librarianship*. Vol. 38, No. 6, November 2012: 391 – 399.
- Constantinou, C. "Enhancing the Maritime Curriculum With Online Education and Scholarly Resources." *Journal of Maritime Research*. 9.3 (2012): 67-74.
- Fazal, Shafeek. "Assessing Maritime Students' Learning Outcomes in Information Literacy." *Session A: Keynote Addresses and Status/Trend of MET*: 32-42.
- Graham, Leah, and Panagiotis Takis Metaxas. "Of course it's true; I saw it on the Internet!: critical thinking in the Internet era." *Communications of the ACM* 46.5 (2003): 70-75.
- Holman, Lucy "Millennial Students' Mental Models of Search: Implications for Academic Librarians and Database Developers." *The Journal of Academic Librarianship*. Vol. 37, No. 1, Jan. 2011: 19 – 27.
- IMO. "Noise from Commercial Shipping and Its Adverse Impacts on Marine Life."  
[ocr.org/pdfs/policy/2014\\_Shipping\\_Noise\\_Guidelines\\_IMO.pdf](http://www.imo.org/pdfs/policy/2014_Shipping_Noise_Guidelines_IMO.pdf)
- Kim, Kyung-Sun, Sin Sei-Ching Joanna "Selecting Quality Sources: Bridging the Gap Between the Perception and Use of Information Sources." *Journal of Information Science*. Vol. 37, No. 2, 2011: 178 – 188.

- Mbabu, Lloyd Gitari, Bertram, Albert, Varnum, Ken "Patterns of Undergraduates' Use of Scholarly Databases in a Large Research University." *The Journal of Academic Librarianship*. Vol. 39, Issue 2, March 2013: 189 – 193.
- Mizrachi, Diane "Undergraduates' Academic Information and Library Behaviors: Preliminary Results." *Reference Services Review*. Vol. 38, No. 4, 2010: 571 – 580.
- Pew Research Center. "Millennials: A Portrait of Generation Next." 2010: 10 – 11. Accessed July 28, 2014 <http://cdm266901.cdmhost.com/cdm/ref/collection/p266901coll4/id/2619>
- Porter, Brandi "Millennial Undergraduate Research Strategies in Web and Library Information Retrieval Systems." *Journal of Web Librarianship*. Vol. 5, No. 4, 2011: 267 – 285.
- SUNY Maritime College Undergraduate Catalog 13-14.
- Watters, Carolyn. "Motivational Factors for Interface Design." *Theories of Information Behavior*. Ed. Fisher, Karen E., Erdelez, Sandra, McKechnie, Lynne. Medford, NJ: Information Today Inc., 2006. 242 - 246. Print.
- Zipf, Gorge Kingsley. "Human Behavior and The Principle of Least Effort." Harper Publishing: New York (1965)