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Don't Forget To Ask Your T-Shaped Alumni! An Exploratory Study

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Abstract: What started out as a curiosity after having conversations with alumni about continued access to library databases became the author's research focus of an exploratory study. Librarians conduct information literacy classes using databases as tools to help students develop research and analytical skills which employers expect. The expensive subscription costs of these library databases require routine scrutiny of their usage and content by librarians. The outcome of the exploratory study was very promising and indicated that alumni do want to be asked for feedback and suggestions. The author plans to use the study's results as a guide for future studies as well as assessing the strengths, weaknesses, threats and opportunities (SWOT) of the author's university science, health science and technology library database collection and library instruction.

Keywords: alumni, assessment, library databases, information literacy instruction, collection development

1. Introduction

What started out as a curiosity after conversations with alumni about continued access to library databases became the author's research focus in an exploratory study. The author wondered if alumni would take the time to answer a library database usage survey. Alumni are influential library supporters who provide financial and administrative related support to universities and colleges. Prospective students have acknowledged their reasons for attending a university or college based on alumni endorsements (Flegg, 2012). Students complete library surveys after attending library instruction classes but there is very little literature that survey students after they graduate to assess the application of their library research skills in their careers (McNabola and Coughlan, 2013) ; (Travis ,2011); (Weiner, 2011).

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The purpose of library information literacy classes is to teach about the value and use of library databases as research tools as well as how to analyze and communicate information in an ethical manner (Lloyd, 2011); ("Information Literacy," 2010). The ability to know how to obtain and analyze information is viewed as one of the highly ranked skills employers expect of T shaped college graduates (Adams, 2014); (Coccoli, Guercio, Maresca, and Stanganelli, 2015). T-shaped alumni are defined as students who graduate with an in depth knowledge of disciplines and transferable skills requiring interdisciplinary communication and collaboration skills (McNabola and Coughlan, 2013). The American Association of Colleges and Universities reported that the majority of surveyed employers expect T-shaped college students to be able to utilize multiple types of tools and resources with their information research and analytical skills (Jacobs, Dalal and Dawson, 2015). The use of library databases can be used to measure the development of current students and alumni's information research skills. (Monge and Frisicaro-Pawlowski, 2014).

2. Background

The author is a science university librarian in New York state who conducts non-credit library instruction classes based on faculty requests. The library instruction classes are not mandatory at the author's university therefore not all students attend. Another responsibility of the author is to continually assess the usage of library databases which support the university's accredited science, health sciences and technology degree programs. The author's university library subscribes to databases produced by Proquest, Ebsco, Elsevier, Wiley, American Chemical Society and many others. The expensive subscription costs for library databases require close scrutiny of their usage by the author's library. Libraries pay subscription fees to commercial library database vendors for access to information and not for the ownership of the databases' content (Flegg, 2012). An increasing number of colleges and universities have negotiated database access for their alumni (Turner, Sweany, Stockton and Gaetz, 2008), (Wells, 2006). The author's university library has negotiated continued database access for alumni with a few of the library database vendors. Alumni are heavy information users who expect to have access to the electronic books, journals and databases they had used as students while in college (Sanville, 2012).

3. Method

The study's research proposal questions were:

- Are alumni in the science, technology, engineering and mathematics (STEM) fields still using library subscription databases in their professions and work environments?
- Which library subscription databases are still used by alumni and in what type of work environment e.g. company libraries, government, hospital, academic, public libraries?

A qualitative research designed survey of library database usage by alumni was conducted. The purpose of the survey was to identify which library subscription databases were still being utilized by alumni in their workplace and careers. Questions about the usage of freely available databases and other resources were also included in the 10 questions survey.

Graduate and undergraduate students who had graduated between 2009 to 2015, from the university's science, technology and health sciences degree programs were contacted. The author's university alumni office provided the author with the email addresses of 1,550 alumni. Introductory letters which included a link to the library survey were emailed to the alumni explaining the purpose of the voluntary study. The introductory letter and survey had been approved by the author's university institutional review board (IRB). No gifts or incentives were provided in the survey tool and study. The participants were notified that their anonymous responses would benefit the author and the author's university. Clipboard, an internal university department software was used to design the survey and to anonymously gather the survey responses.

4. Results

The author immediately received 45 completed surveys during the week while still emailing out the introductory letters. The survey's response deadline for the alumni was thirty days after receipt. One hundred and eighty five surveys were not delivered due to incorrect email addresses provided by alumni to the university's alumni office. The data in the forty five surveys was uploaded into Atlas.ti, a qualitative data analysis software used to code the survey responses. The author used the grounded theory method to iteratively code and to analyze the survey responses in order to identify recurring themes in the data.

Twenty one males and twenty four females responded to the study and reported they were living in the United States ranging from California, Colorado, Kentucky, Massachusetts, Pennsylvania to New York. The survey participants had graduated with BS, MS or Ph.d. degrees in the biology, biomedical, bioinformatics, biotechnology, chemistry, environmental science, imaging science, mathematics, nutrition, physics, statistics and physician assistant fields. Twenty two of the forty five survey participants stated they were currently enrolled in graduate degree programs ranging from biology, biochemistry, ecology, epidemiology, genetics, neuroscience, pharmacy to physics, physical chemistry and statistics.

Forty of the 45 survey participants stated they were working in the following. Environments(table 1):

Total	Work Setting				
18	college/university campus				

11	company (profit or non profit)				
4	government				
1	school				
10	hospital/health/medical/laboratory				
1	manufacturing , plant facility				
1	self employed or work from home				
1	Hospitality				

Table 1: Types of work environments

The type of information research and writing the survey participants stated they continue to conduct were (table 2):

Total	Type of research and writing
39	journal article searches
7	patent searches
13	statistics/demographics searches
10	technical standards searches
1	other: lab research

Table 2: Types of research and writing

The survey participants were asked to mark as many of the listed databases that they continue to use after graduation. Those that did not have access to library databases reported using Google, Google Scholar and internal company/government/college/school databases (table 3).

Total	Database
11	American Chemical Society - Scifinder database, EJournals database
5	arXIV.org
2	Astrophysics data system (SAO/NASA ADS) database
3	ASTM standards
4	Ebrary Electronic books
13	EBSCO

22	Elsevier ScienceDirect
8	IEEE/Inspec/Compendex
16	JSTOR
3	Knovel
4	MathSciNet/SIAM
18	NCBI (National Center for Biotechnology/gene databases)
11	Proquest
5	US Patents database
16	SpringerLink electronic journals and Ebooks
28	Pubmed/Medline/Cochrane/Ovid
3	SPIE
3	PROLA-American Physical Society
13	Web of Science Science Citation
23	Wiley electronic journals and Ebooks
4	None of the above databases or Use other databases
Other	UpToDate IETF/RFC Scopus biorxiv, PLOS ONE, Nature, Science, Cell, PNAS google scholar

Table 3: Library Databases still being used after graduation

4.1 Recurring Themes

The survey's open ended question that asked "Are there any software tools, databases, information research, citing and writing skills, you wish you had learned before graduating?" generated the most enlightening responses and themes. The alumni responses ranged from No to wishing to have had more undergraduate computer science courses and to have known about library databases, citation and data management software. Pubmed and Web of Science were the two library databases referenced in the alumni responses. Zotero, Mendeley, LaTek , Zenodo, Papers app for OS X were the software referenced in the alumni responses.

Other alumni stated they had wished they had developed better writing skills as well as communication skills. Communicating with senior level management, as well as using email as the communication tool in a professional setting were concerns among the alumni.

Writing, citing and journal article publishing skills were also concerns revealed by alumni responses. Specifically how to write a research paper and what to expect during a paper submission process for journal publication approval generated the most comments. Some alumni had inquired if there was a standardized citing and paper approval process used by the journal publishing industry.

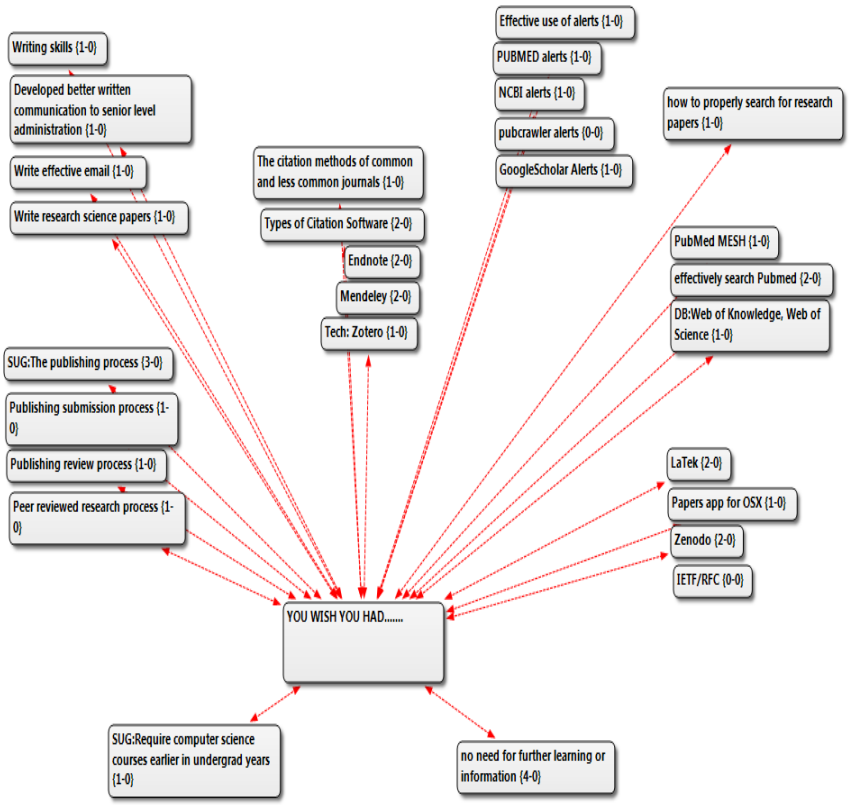

Figure 1: What Alumni wished they had known after graduating

5. Summary

The wish for better communicating, writing, publishing, software and technology skills were the recurring themes revealed by the alumni responses in the exploratory study.

Receiving forty five survey responses immediately during the email distribution process indicated that alumni do want to be asked for their feedback and suggestions. The qualitative survey was originally designed to see if alumni would take the time to respond to a library survey since no gifts or incentives were provided during the study. The theme of learning more about technology included computer science courses as well as setting up database alert services highlighted what alumni are encountering in their workplaces and graduate studies. Transitioning from a student mindset and environment to workplace and graduate level environments was also highlighted by alumni wishing to know how to better communicate with senior level management.

Teaching information literacy provides librarians opportunities to learn more about students while they are in college (Roy and Hallmark, 2015). The benefit of surveying alumni is to find out how they are doing after graduation as well to find out what resonated the most in their education process at their university. Alumni provided unexpected and unsolicited responses in the survey referencing the influence of the author's library and faculty's instruction for example " …has done an excellent job preparing me for the world. …..instrumental in my success, especially in a profession such as….. I still make use of …. It's what I am most comfortable and familiar with."

5.1 Lessons Learned

The study was purposely designed to be a low keyed exploratory project which was not advertised on campus with flyers, posters and through social media like Facebook and Twitter. Survey deadline reminders were not emailed to alumni. The population targeted in the study were limited to only STEM alumni who had graduated from the university's science, health sciences and technology degree programs.

In future studies questions will need to be reworded and enhanced in order to clarify definitions. For example one alumni had inquired if getting paid for graduate student research was also considered work. Since library instruction classes are not mandatory at the author's university, future surveys will inquire if and when did alumni attend library instruction classes while as students.

The questions in the survey were purposely designed for anonymous responses by not linking the use of specific library databases like the Amereican Chemical Society's Scifinder database to specific alumni environments. Almost half of the survey respondents indicated that they were still pursuing graduate study. The use of library databases while enrolled in graduate school were not distinguished from the use of library databases in a company or government

workplace. Qualtrics instead of Clipboard will be used as the survey software tool to use to distinguish the use of library databases in workplaces and for graduate study.

6. Conclusion

The goal of the exploratory study was met and was demonstrated by the immediate alumni responses with their helpful feedback. The alumni's comments about their need for better communication, and publishing skills were unexpected responses which the author will incorporate as topics in future studies. A variety of **s**tandard library subscription databases are still being used by alumni in various work and graduate study environments. Alumni responses concerning technology, databases and citation management software were expected and valuable feedback. The author will consider using social media like Facebook and Twitter as advertising tools. Providing anonymous gifts to study participants will also be considered. If feasible, the author will consider a mixed method study in order to generate quantitative and qualitative results.

This type of exploratory library study highlights benchmarking opportunities for library administrators and librarians to consider while reviewing accredited materials acquired for degree programs as well for information literacy classes. Alumni working or continuing their education in the STEM fields will probably have access to subscription based library databases (Crawford, 2006); (Jeffryes and Lafferty, 2012). Libraries financially invest heavily in databases, software and publications that will be used by students even after they graduate. Surveying T-Shaped alumni can help libraries assess the return on their investments (ROI) which are the library databases, software and publication collections. Exploratory studies that include both current students and alumni could help librarians investigate the strengths, weaknesses, threats and opportunities (SWOT) for their library class instruction and library collection development. The T-Shaped alumni responses will be a guide for the author while assessing the SWOT variables of the author's university science, health sciences and technology library collections and library class instruction.

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