Learning Curve: How College Graduates Solve Information Problems in the Workplace
Presented by Michele Van Hoeck at California Conference on Library Instruction, 2013

This paper summarizes the findings of the 2012 Project Information Literacy (PIL) study of information seeking and using behavior of recent college graduates in the workplace. Also included are opportunities for academic and instruction librarians to apply these findings, as well as select comments from the audience at the 2013 California Conference on Library Instruction (CCLI).[1]

There has been relatively little research on information literacy in the workplace, particularly in the United States, but one recent survey should be noted as a preface to discussing PIL's research. The National Association of Colleges and Employers (NACE) publishes a biannual survey of employers, asking what competencies they consider most important in recent college graduates. For the first time in 2011, the NACE survey included "Ability to obtain and process information," which employers ranked 4th of 10, calling it "very to extremely important" (NACE, 2011).

Overview and Methodology

Project Information Literacy (PIL) is an ongoing national study led by Alison Head, in partnership with the University of Washington's Information School. PIL's 2012 workplace study, titled "Learning Curve," was its sixth study since 2008. In addition to Dr. Head, three instruction librarians, including the author, and two graduate students collected and analyzed data for the Learning Curve study. The Learning Curve study received funding and support from the Institute of Museum and Library Services and Harvard's Berkman Center for Internet and Society.

The Learning Curve study consisted of two parts: phone interviews with employers and focus groups with recent college graduates, conducted in spring 2012. A total of 23 employers were included in the sample, many identified by career services offices at campuses in previous PIL studies. The largest employer included was Marriott, one of several Fortune 500 companies in the sample, and the smallest was a two-person non-profit in Washington, D.C., that hires paid interns. PIL spoke to managers responsible for hiring, training, or evaluating recent college grads. Industries covered included media, technology, engineering, government, manufacturing, healthcare research, hospitality, transportation, and financial services.

In addition to employer interviews, PIL team members conducted four focus groups with a total of 33 recent graduates of four institutions: Santa Rosa Junior College, University of Puget Sound, University of Texas Austin, and Harvard College.

During interviews and focus group sessions, researchers tried to avoid library jargon, using either "research" or "solving information problems" instead of "information literacy."

---

[1] Further details on this study's methodology and findings can be found in the official report at *http://projectinfolit.org/pdfs/PIL_fall2012_workplaceStudy_FullReport.pdf*. Additional discussion of implications and opportunities for instruction librarians were published in a *Library and Information Research* article at *http://www.lirgjournal.org.uk/lir/ojs/index.php/lir/article/download/557/593*.

After interviews and focus groups concluded, the research team coded data using ACRL's 14 Information Literacy performance indicators and Art Costa's 16 Habits of Mind, a set of thinking dispositions exhibited by critical thinkers:

HOM 1: Persisting
HOM 2: Communicating with clarity and precision
HOM 3: Managing impulsivity
HOM 4: Gathering data through all senses
HOM 5: Listening with understanding and empathy
HOM 6: Creating, imagining, innovating
HOM 7: Thinking flexibly
HOM 8: Responding with wonderment and awe
HOM 9: Metacognition
HOM 10: Taking responsible risks
HOM 11: Striving for accuracy and precision
HOM 12: Finding humor
HOM 13: Questioning and problem posing
HOM 14: Thinking interdependently
HOM 15: Applying past knowledge to new situations
HOM 16: Remaining open to continuous learning

(Costa & Kallick)

Findings

Findings include employers' expectations and observations of how recent college graduates solve information problems in the workplace. From the graduates' perspective, findings include challenges encountered and college learning experiences that have been most applicable in the workplace. Presented after each finding are representative, illustrative quotes from either an employer or a recent graduate.

Employers' Perspective: Expectations and Strengths

Employers' baseline expectations of college graduates, i.e. what they would expect a new hire to be able to do without training:

1. Find information online
2. Use a search strategy that goes beyond the first page of Google results
3. Articulate a "best solution" and conclusion from all that was found

Employers did not expect recent graduates to be knowledgeable about all industry sources and processes but they did expect them to show "openness to learning," one of the 16 Habits of Mind.

The strength mentioned most often by employers was college graduates' ease with technology.

The contrast is so evident between us on one side and them on the other side.
They are connected in a way that my generation wasn't."

Information? They find it, they take it, and they blend it, they mash it up, they re-purpose it."

Employers' Perspective: Competency Gaps

PIL identified four gaps, or areas of difficulty for college graduates in the workplace, according to employers. These are competencies that employers need, but rarely see, in recent graduates. The most frequently mentioned competency gaps were:

1. Engage their Team during the Research Process.

    This social side of research meant using team members as sources of information, as well as engaging with team members in an iterative way, to get feedback or suggestions at any stage of the process. Other research done on workplace information literacy has reported on the social aspect of information seeking and use in the workplace.[2]

    "We need someone who will go out and explore on their own and then come back to the team and say, 'Here's my best take, what do you think?' They need that ability to invite discussion and be able to redirect on the fly."

    "They believe the computer is their workspace, so basic interactions between people are lost. They won't get up and walk over and ask someone a question. They are less comfortable and have some lack of willingness to use people as sources and also have a lack of awareness that people are a valid source of information."

2. Use a Variety of Formats.

    Employers pointed out that solving information problems in the workplace often requires synthesizing information from people, print, and online sources. In-house materials and expertise were often not used by recent graduates, who tended to rely on public online information only.

    "There were many graduates who just looked in one place—the Internet—and that was the problem. It's a whole bag of tricks you need for doing research today."

3. Find Patterns and Make Connections

    "Difficulty distinguishing the noise from the solid material"

    "Get stuck in the mud trying to figure out what it all means."

4. Be Thorough in the Research Process

---

[2] See literature review in Head, Van Hoeck, Eschler, & Fullerton, 2013, for additional research on the social aspect of workplace information literacy at *http://www.lirgjournal.org.uk/lir/ojs/index.php/lir/article/download/557/593*.

Persistence in solving information problems is related to all three of the challenges mentioned above, and is another of the 16 Habits of Mind.

> *"I don't think there's a lot of that desire to go deep. They expect information to be so easy to get, that when it's not, it's frustrating to them."*

Graduates' Perspective

Findings from focus groups with recent college graduates revealed some overlap with employers' perspective of the workplace environment, and some areas where their perspectives seem to conflict. Focus group moderators asked graduates, what is challenging about solving information problems in the workplace? What strategies do you use to solve information problems?

Many focus group participants reported feeling stress around the demands of their first jobs:

> *"My job feels like there's a perpetual thesis due, but my job is literally about finding information that does not exist. My information needs have changed and intensified since I was an undergraduate."*

Challenges reported most often by recent graduates were:

1. Increased sense of urgency in the workplace

2. Little structure or direction given in workplace tasks

3. Information seeking and use is highly contextual and fundamentally social

Graduates reported that several competencies had transferred well from their college days; mentioned most often was the ability to:

1. Systematically evaluate sources

2. Critically read and analyze published sources

3. Synthesize large volumes of content and extract quality information

These findings suggest that both employers and recent graduates see workplace research as fundamentally social. According to one recent graduate, "The biggest hurdle for me was getting used to talking to strangers." From the employers' perspective, graduates "need to look beyond their computer screens."

One area where perspectives did not overlap revolved around time management. Recent graduates in our sample perceived the workplace as fast-paced and believed they need to quickly deliver the right answer when solving an information problem. Employers wanted graduates to be more persistent and thorough, checking in with their team during the process. This divergence in perspective could play a part in explaining the competency gaps reported by employers.

What is Workplace Information Literacy?

Drawing mainly on PIL findings reflecting employers' perspective, workplace research:

- Is **social** and socially iterative
- Synthesizes a **variety** of sources and source types
- Seeks **patterns**
- Requires **persistence** and **openness to continuous learning**

Discussing examples of informational research with employers in a range of industries can be helpful in understanding what workplace information literacy looks like. When prompted via Poll Everywhere with the question "What information problems do you solve at work?" CCLI attendees responded with the following examples:

- *Finding grant money*
- *How/ where to dispose of batteries*
- *Gap between info lit in high school and college. What professors expect versus what students learn in high school*
- *Find new desk lamps for library. How to convert LED watts to lighting lumens required for libraries?*
- *Purchase a new projector*
- *Find information about competitors*
- *HR best practices for personal cellphone use at work*
- *Information on other colleges' practices for administrative meetings*
- *What is permissible in terms of fair use*
- *Finding out how to get EndNote CWYW on a Mac*
- *Finding online manuals for various technology in use*
- *Writing social media policy*
- *Sample interview questions*
- *Scenario building to help flesh out aspects of a problem*
- *How to launch a badging or certification program in conjunction with library instruction*
- *How to use a particular software function, like COUNTIF in Excel*
- *Understanding software error code to troubleshoot*
- *Finding successful active learning techniques to implement in my class*
- *Researching a research center's history using media/news sources for a gala event*
- *Policies/procedures for conducting a faculty search*
- *Math formulas for statistics*
- *Find ways people use twitter in the classroom and prepare presentation for instructors*
- *Immigration questions for students*
- *How to convert swf to mp4*
- *Strategic planning*
- *How many people listen to a certain genre of music in a specific geographic area*
- *Planning travel*
- *How are other campuses assessing info lit instruction?*

- *What cleaning solution will kill germs/bacteria but still be safe / legal to use in a preschool*
- *Purchasing new conference room table*
- *Doing X task in Y software program*

Opportunities for Instruction Librarians

One way workplace information literacy differs significantly from information literacy in the academic environment is the social side of research at work. But in recent years, team-based academic assignments have increased. If team projects are so prevalent in college, why aren't graduates better at doing research in teams? Polled via Poll Everywhere, CCLI attendees responded:

- *It is time consuming*
- *Concern with being judged individually based on performance of others*
- *AACU has rubric on teamwork but does any class or prof teach it?*
- *Profs are independent contributors and don't know teamwork themselves*
- *They work with friends in school and it's fun. At work, it's more serious*
- *No one teaches teamwork*
- *No team direction not enough prof direction*
- *Competitiveness to demonstrate yourself ESP during trial period*
- *They do not trust their peers' ability*
- *Resistance to actually working collaboratively. They aren't familiar with it.*
- *Lack of team structure*
- *Team projects can be done remotely too - via email, Google docs, etc. -- they don't reallllyyy work together*
- *Lack of confidence*
- *They seem to work independently then combine at the end. Parcel the work out in assignments.*
- *Recent grads may not respect the knowledge or experience that their colleagues bring to the table because we as educators assign team projects but don't supervise them*

Of 87 ACRL IL learning outcomes, 14 could be considered social, or 16%. How many of these are instruction librarians addressing? Opportunities to address the social side of research include:

- Encouraging team consultations with librarians
- Teaching identification of experts as sources
- Discussing tools and sources that make iterative, team-based research more transparent, such as Google Docs, Zotero, and Wikipedia.

Other aspects of workplace information literacy are recognizable and desirable academic outcomes. Hypothetically, research paper assignments require and develop persistence, iterative process, and the ability to find and integrate a variety of sources. But do they? Are research papers the best way to develop persistent, iterative researchers for the non-academic jobs most college graduates will hold?

Instruction librarians can use the PIL findings to enhance student motivation during research assignments and make connections between information literacy and more "real world" research tasks:

- Use data from NACE and PIL to talk with students about the value of information literacy in the workplace
- Partner with faculty to design research assignments that reflect workplace realities
- Reach out to extracurricular groups on campus, which often perform research tasks similar to those found in the workplace

Finally, PIL's findings offer a new perspective on information literacy assessment. Measuring source variety and research persistence could provide a more authentic assessment of student learning and readiness for the workplace.

Bibliography

Association of College & Research Libraries. (2000). *Information Literacy Competency Standards for Higher Education*. Retrieved from http://www.ala.org/acrl/standards/informationliteracycompetency.

Arthur Costa and Bena Kallick. (n.d.). *Describing 16 habits of mind*. Retrieved from http://www.instituteforhabitsofmind.com/resources/pdf/16HOM.pdf

Alison Head. (2012). *Learning curve: How college graduates solve information problems once they join the workplace.* http://projectinfolit.org/pdfs/PIL_fall2012_workplaceStudy_FullReport.pdf

Alison Head, Michele Van Hoeck, Jordan Eschler, and Sean Fullerton. (May 2013). "What information competencies matter in today's workplace?" *Library and Information Research,* vol. 37, no. 114. Retrieved from http://www.lirgjournal.org.uk/lir/ojs/index.php/lir/article/view/557

National Association of Colleges and Employers. (2011). *NACE 2011 Job Outlook.* Bethlehem, PA: National Association of Colleges and Employers (NACE).