Visitors and Residents:

What Motivates Engagement with the Digital Information Environment?

Lynn Silipigni Connaway, Ph.D.
Senior Research Scientist
OCLC Research
6565 Kilgour Place
Dublin, OH 43017
303-246-3623
connawal@oclc.org

David White
Co-manager
Technology Assisted Lifelong Learning
University of Oxford
Ewert House
Summertown
Oxford OX12 7AQ
+44 (0)1865 280989
david.white@conted.ox.ac.uk

Donna Lanclos, Ph.D.
Associate Professor for Anthropological Research
J. Murrey Atkins Library
University of North Carolina, Charlotte
9201 University City Blvd.
Charlotte, NC 28223-0001
704-687-2060
dlanclos@uncc.edu

ABSTRACT

This 3-year project is funded by JISC, OCLC, Oxford University, and the University of North Carolina, Charlotte. It does not aim to answer 'What works?' but 'Why does it work?'. If we gain a better understanding of student and scholar motivations for engaging in the information environment, we have a greater chance of meeting expectations and creating services which are used and ultimately good value for money. We cannot continue to provide an educational version of every available platform in an attempt to mirror the web within institutions. We must make informed decisions on how to move forward to ensure that we will not be at the mercy of every 'new' technology that becomes available nor will we be expending funds on services, systems, and facilities that are not used.

The project is an attempt to fill the gap in user behaviour studies identified in the JISC *Digital Information Seeker Report* (2010). Connaway and Dickey (2010) call for a longitudinal study "to identify how individuals engage in both the virtual and physical worlds to get information for different situations could be conducted" (p. 56). They believe that "Such an investigation would contribute to a better understanding of how individuals navigate in multiple information environments and could influence the design and integration of systems and services for devices and applications, as well as cloud computing" (Connaway and Dickey (2010, p. 56). It utilises the visitors and residents principle described in the TALL blog (White 2008), which hypothesizes that neither age nor gender determines whether one is a visitor (one who logs on to the virtual environment, performs a specific task or acquires specific information, and then logs off) or a resident (one who has an ongoing, developing presence online).

ASIST 2011, October 9-13, 2011, New Orleans, LA, USA.

Keywords

Ethnographic methods, evidence-based decision making, digital information, undergraduate students, high school students, technology, visitors, residents.

INTRODUCTION

We have little understanding of what motivates individuals to use particular technologies or spaces when engaging with the information environment. As a result people tend to adopt simplistic but culturally panicked ideas in their attempts to grasp the problem while others delve into specifics to the extent that little substantive conclusions can be drawn. This lack of understanding also makes the task of facilitating 'digital literacy' skills challenging as any form of literacy has to be defined against the motivations and goals of those individuals being taught.

The educational technology community and those responsible for creating and delivering services in the digital information environment could easily be accused of using an 'if we build it they will come' approach. This is an effect of institutions focusing on the provision of resources without properly considering the expectations or motivations of students and scholars. Individuals' shifting

engagement with the information environment appears to have radically changed in the last decade; yet it is unclear whether this is the effect of larger cultural changes brought about by the web or of new attitudes towards education as a whole.

There is now a multiplicity of ways to engage in the information environment. Both the physical and digital libraries are among a plethora of options available to the information seeker. The large number of available open access choices creates a competitive information environment for universities that expend a great amount of resources on the information environment in the form of academic staff, print and digital sources, physical space (such as laboratories, libraries, and classrooms). The university resources often are not the first or even second choices of the academic community, who often choose the more convenient, easier to use open-access sources (Beetham, McGill, & Littlejohn, 2009; Centre for Information Behaviour and the Evaluation of Research [CIBER], 2008; Connaway, & Dickey, 2010; Warwick, Galina, Terras, Huntington, & Pappa, 2008).

OBJECTIVES

This three-year longitudinal study is conducted in 4 iterations of a sample of students and scholars representing different stages of the educational lifecycle:

1. Transitional (Late stage secondary school – first year undergraduate);

2. Establishing (Second/third year undergraduate);

3. Embedding (Postgraduates, PhD students);

4. Experienced (Scholars).

The design of the study is an attempt to eliminate any assumed links between age and technological engagement by working with users over time, tracking the shifts in their motivations and forms of engagement as they transition between these educational stages. The findings will be used to create a matrix of implementation options allowing those designing and delivering digital platforms and services to make informed decisions relative to engagement and motivation for individuals at each of the educational stages.

The ethnographic data collection methods and the individual attention devoted to the subjects will yield a very rich data set enabling multiple methods of analysis. Instead of reporting the general information-seeking habits of the Google Generation and their use of technology, this study explores how the subjects get their information based on the context and situation of their needs during an extended period of time, identifying if and how their behaviours change. The project is user-centered, not platform- or discipline-centered. There is a history of research being conducted on University campuses among undergraduates and faculty, in attempts by libraries and information scientists to learn about the ways in which people search for the information they need to live their lives, both in and out of academic environments. (e.g., Bartley et al., 2006; Connaway, 2008; Connaway, Radford, Dickey, Williams, & Confer, 2008; Delcore, Mullooly & Scroggins, 2009; Dervin, Connaway, & Prabha, 2003; Foster & Gibbons, 2007; Fister, 1992; Gabridge, Gaskell, & Stout, 2008; Head & Eisenberg, 2009; Malvasi, Rudowsky, & Valencia, 2009; Maybee 2006; Prahba, Connaway, Olszewski, & Jenkins 2007; Suarez, 2007; Valentine, 2001; White, 2008; Witt & Gearhart, 2003; Jordan & Ziebell, 2009). Previous ethnographic studies of students (Asher & Miller 2011; Bartley et al., 2006; Connaway, 2007, 2008; Delcore, Mullooly, & Scroggins, 2009; Dervin, Connaway, & Prabha, 2003; Foster & Gibbons, 2007; Gabridge, Gaskell, & Stout 2008), in addition to focusing on university students, have also tended to be limited in time, gathering information from a given semester, or even over the course of a single project within the semester. The literature reviewed includes no longitudinal research studying individuals' information use and search behaviours within a contextual framework in the different educational stages. Another problem with previous studies is that there is very little attention paid to where information-gathering habits originally form in students; doing research exclusively among people who are already in university—either as students or as faculty—does not tell researchers where and how they learned to gather and evaluate information.

The Transitional stage is of particular interest as it bridges what is traditionally seen as a distinct divide between higher and tertiary education. We believe that this divide is notional and that the student's information-gathering techniques are unlikely to change in the few months between secondary school and university. Given the inclusion of this educational stage, the project will be building links with the secondary education sector. By including the Transitional educational stage the project will generate outputs which will enable universities to make informed decisions for planning services and systems for entering students; therefore, proactively planning rather than haphazardly reacting to passing trends.

METHODOLOGY AND RESEARCH QUESTIONS

The educational stages mentioned above will demarcate participants as they transition through the educational system. In addition to this participants will be chosen to draw out engagement factors relative to:

1. **Cultural background**
   Participants were recruited from matching educational-stages in both the UK and the US.
2. **Socio-economic background**
   Participants were recruited to represent a range of socio-economic backgrounds.
3. **Disciplinary focus**
   Participants were recruited from the arts/humanities and the sciences.

Selecting participants on this basis allows the study to delineate generic engagement factors from those that are specific to particular groups.

A set of questions were developed for the individual interviews with the participants. The same questions were asked of all participants. These questions were developed based on the literature and prior research and addressed the participants' needs and behaviours in both personal and academic situations and contexts. See Appendix A.

Using the visitors and residents principle as a framework the project identifies the study participants' preferred methods of engagement with the information environment and explores the motivations behind their choices.

A subset of individuals from each of the educational stages are being tracked (through the monthly interviews, review of diaries, etc.) to identify their changing approaches to the information environment as they move through the educational stages. The participants were given a choice of communication methods, such as instant messenger interviews, Facebook, diaries, blogs, face-to-face or telephone, with the research team. This provides additional information about the different participants' preferred forms of communication and insight into how services need to be presented as context and expectations shift during the educational lifecycle.

The 3-year, 4-phased study is based on the following key research questions:

What are the most significant factors for novice and experienced researchers in choosing their modes of engagement with the information environment?

- Do individuals develop personal engagement strategies which evolve over time and for specific needs and goals, or are the educational contexts (or, in the context of this study, 'educational stages') the primary influence on their engagement strategies?
- Are modes of engagement shifting over the course of time, influenced by emergent web culture and the availability of 'new' ways to engage, or are the underlying trends and motivations relatively static within particular educational stages?

Phase 1 Pilot stage: Months 1 – 6

The initial 6-month pilot stage has focused on the Transitional educational stage to refine the research methodology and to establish the value of the work to the stakeholders. In the US the project worked in close partnership with the University of North Carolina, Charlotte (UNCC) to recruit participants, from different socio-economic groups from both private and public secondary schools as well as first-year university students. In the UK participants were drawn from Oxford Brooks University, Warwick University and secondary schools in Oxford and Leicester.

Participants

Thirty individuals in the Transitional Educational Stage (late stage secondary/high school and 1st year university) were recruited -15 in the US and 15 in the UK.

Of the 30 participants recruited 6 in the US and 6 in the UK were asked to document their information seeking activities for a 3-month period. They were closely facilitated through this process and communicated with the research team in the medium of their choice over this period.

Data

The data collected from the interviews and monthly correspondence with the selected 12 students provide rich data that have been analyzed and reported both quantitatively and qualitatively.

- The quantitative data include demographics; number of occurrences for different types of technologies, sources, and behaviours.
- The qualitative data provide themes that identify behaviours and sources for different contexts and situations and include direct quotes and behaviours. Examples of direct quotes:

"…our generation isn't technology orientated. I think it's always a stereotype."

(Participant UKS4)

"I just type it into Google and see what comes-up…"

(*Participant UKS2*)

"I simply just type it into Google and just see what comes up"

(*Participant UKS4*)

"I knew that the internet wouldn't give me a wrong answer."

(*Participant UKS4*)

"I always stick with the first thing that comes up on Google because I think that's the most popular site which means that's the most correct."

(*Participant USS1*)

The data were manually coded using theme analysis and then input into the NVivo software program. This enabled the researchers to analyze and report the data not only by themes and demographics but also by the number of respondents and percentiles.

There are 4 phases to this project. Although the researchers only will discuss the findings from the first phase of the study, it is important to explain the other 3 phases of the study to fully understand the scope of the project and the possible impact the findings may have on planning services and systems for students entering universities.

NB: The following phases are outlined here to set the pilot phase in the context of the overall longitudinal study.

These phases are likely to be iteratively modified to account for ongoing findings and to ensure that the overall study remains as relevant to the stakeholders as possible over time.

Phase 2: Months 7-12

The study is being extended to include six participants from the other three educational stages. Building on the principle of the pilot the additional participants will be recruited from a post 1992 institution, such as Oxford Brookes University and an older institution, such as Warwick University in order to more accurately portray typical UK students and scholars. This will bring the total number of participants including those from the pilot phase to 48. In the US, recruiting will continue at UNC Charlotte, which has a history of non-traditional students (especially returning students, and transfer students), but has recently begun recruiting larger percentages of students straight from high school, In one location, therefore, we have the opportunity to sample a wide and representative sample of US students and scholars.

Phase 3: Months 13-24

In addition to the tracking of the 24 participants during the second phase of the study, an online survey will be developed and disseminated to a total of 400 students and scholars – 200 from each of the universities. Fifty participants from each of the four educational stages will be selected from each of the universities. The participants will be asked questions derived from the collection and analysis of data collected from the 48 participants during the first two phases of the project. Since the longitudinal study sample is small, the online survey is a way to involve more participants in the study to validate the data collected from the individuals who participate in the three-year study.

Phase 4: Months 25-36

In the third year the project will work with a second group of six students (three students from each of the two types of universities) in the Transitional stage. This will help to determine if methods of engagement are changing over time as well as through the educational stages.

The project is not assuming that all expectations of the members of the four educational stages necessarily should be met since these expectations may need to be questioned. The educational process should, at times, be challenging and possibly disruptive, accepting that there should be a healthy tension between educational institutions and those it is there to serve. However, if a clear picture of expectations can be identified, informed decisions can be instrumental in determining what expectations should be challenged and the benefit to the learners that these challenges deliver.

CONCLUSION

Although this project is a multi-phased longitudinal study funded by 4 institutions, it can be used as a model for single institutions to study and learn about their user groups. This study is not limited to any one organization within the university community; therefore, can be easily adapted to many different situations. This type of research can be initiated by professionals to collect data that can help organizations make planning decisions based on evidence (data).

The researchers will explain not only the research findings but the research methodology. This will give others, including those who are new to research, the opportunity to replicate all or selected phases of the research. The more research replicating the methodology used for this project, the better chance of making sense of how individuals engage with technology for their information-seeking behaviours while transitioning between the different educational stages.

REFERENCES

Asher, A., & Miller, S. (2011). *The ERIAL (Ethnographic Research in Illinois Academic Libraries) Project.* Retrieved from http://www.erialproject.org/

Bartley, M., Duke, D., Gabridge, T., Gaskell, M., Hennig, N., Quirion, C., Skuce, S., Stout, A., & Duranceau, E. F. (2006). *User needs assessment of information seeking activities of MIT students – spring 2006.* Retrieved from http://hdl.handle.net/1721.1/33456

Beetham, H., McGill, L., & Littlejohn, A. (2009). *Thriving in the 21st century: Learning literacies for the digital age (LLiDA Project).* Glasgow: The Caledonian Academy, Glasgow Caledonian University. Retrieved from http://www.academy.gcal.ac.uk/llida/LLiDAReportJune2009.pdf

Centre for Information Behaviour and the Evaluation of Research [CIBER]. (2008). *Information behaviour of the researcher of the future: A CIBER briefing paper.* London: CIBER. Retrieved from http://www.jisc.ac.uk/media/documents/programmes/reppres/gg_final_keynote_11012008.pdf

Connaway, L.S. (2007). Mountains, valleys, and pathways: Serials users' needs and steps to meet them. Part I: Preliminary analysis of focus group and semi-structured interviews at colleges and universities. *Serials Librarian 52*(1/2), 223-236. Retrieved from http://www.oclc.org/research/publications/archive/2007/connaway-serialslibrarian.pdf

Connaway, L.S. (2008). Make room for the Millennials. *NextSpace*, 10, 18-19. Retrieved from http://www.oclc.org/nextspace/010/research.htm

Connaway, L. S., & Dickey, T. J. (2010). *The digital information seeker: Report of the findings from selected OCLC, RIN, and JISC user behaviour projects.* Retrieved from http://www.jisc.ac.uk/media/documents/publications/reports/2010/digitalinformationseekerreport.pdf

Connaway, L. S., Radford, M. L., Dickey, T. J., Williams, J. D., & Confer, P. (2008). Sense-making and

synchronicity: Information-seeking behaviors of Millennials and Baby Boomers. *Libri, 58*(2), 123-135. Retrieved from http://www.oclc.org/research/publications/archive/2008/connaway-libri.pdf

Delcore, H. D., Mullooly, J., & Scroggins, M. (with Arnold, K., Franco, E., & Gaspar, J.). (2009). *The library study at Fresno State.* Fresno: Institute of Public Anthropology, California State University. Retrieved from http://www.csufresno.edu/anthropology/ipa/TheLibraryStudy%28DelcoreMullooly Scroggins%29.pdf

Dervin, B., Connaway, L. S., & Prabha, C. (2003). *Sense-making the information confluence: The whys and hows of college and university user satisficing of information needs.* Retrieved from http://imlsosuoclcproject.jcomm.ohio-state.edu

Foster, N. F., & Gibbons, S. (2007). *Studying students: The undergraduate research project at the University of Rochester*. Chicago: Association of College and Research Libraries.

Fister, B. (1992). The research process of undergraduate students. *The Journal of Academic Librarianship, 18*(3),163-169.

Gabridge, T., Gaskell, M., & Stout, A. (2008). Information seeking through students' eyes: The MIT Photo Diary Study. *College and Research Libraries, 69*(6), 510-522.

Head, A., & Eisenberg, M. B. (2009). *Lessons learned: How college students seek information in the digital age.* Seattle: The Information School, University of Washington.

Jordan, E., & Ziebell, T. (2009). *Learning in the spaces: A comparative study of the use of traditional and 'new generation' library learning spaces by various disciplinary cohorts.* Queensland, Australia: The University of Queensland. Retrieved from http://www.library.uq.edu.au/about/NextGenLearningSpacesPaper.pdf

Malvasi, M., Rudowsky, C., & Valencia, J. M. (2009). *Library Rx: Measuring and treating library anxiety: A research study.* Chicago: Association of College and Research Libraries.

Maybee, C. (2006). Undergraduate perceptions of information use: The basis for creating user-centered student information literacy instruction. *The Journal of Academic Librarianship, 32*(1),79-85.

Prabha, C., Connaway, L. S., Olszewski, L., & Jenkins, L. R. (2007). What is enough? Satisficing information needs. *Journal of Documentation, 63*(1), 74-89.

Suarez, D. (2007). What students do when they study in the library: Using ethnographic methods to observe student behavior. *Electronic Journal of Academic and Special Librarianship, 8*(3). Retrieved from http://southernlibrarianship.icaap.org/content/v08n03/suarez_d01.html

Valentine, B. (2001). The legitimate effort in research papers: Student commitment versus faculty expectations. *The Journal of Academic Librarianship, 27*(2), 107-115.

Warwick, C., Galina, I., Terras, M., Huntington, P., & Pappa, N. (2008). *The master builders: LAIRAH research on good practice in the construction of digital humanities projects.* Literary and Linguistic Computing, *23*(3), 383-396. Retrieved from http://discovery.ucl.ac.uk/13810/

White, D. (2008, July 23). Not 'natives' & 'immigrants' but 'visitors' & 'residents.' Retrieved from http://tallblog.conted.ox.ac.uk/index.php/2008/07/23/not-natives-immigrants-but-visitors-residents/

Witt, S., & Gearhart, R. (2003). Ethnography and information literacy: An assessment project. In E. F. Avery (Ed.), *Assessing student learning outcomes for information literacy instruction in academic institutions* (pp. 265-278). Chicago: Association of College and Research Libraries.

Appendix A: Participant interview questions – Secondary/High school and University level.

Secondary/High School Student Interview Questions

1. Describe the things you enjoy doing with technology and the web each week. This is a conversational start in order to put the interviewees at their ease. We are trying to get a sense of their overall digital literacy so that we can set their information seeking behaviours within a broader context. Do they socialise online? (See probe.) Do they 'contribute' online in the form of pictures, video, blogs, etc.?

[PROBES: How important is the web for your social life, do you use it to keep in touch with your friends? What gadgets/devices/things do you use the most, is there anything you 'couldn't live without'? How much time on average do you spend online each week? Is there anything that bothers you about being online?]

2. Think of the ways you have used technology and the web for your studies. Describe a typical week. We are looking at interviewees' use of educational technologies more specifically for study. We hope they will start to introduce informal learning, self-directed study, peer to peer learning, etc. We anticipate they will (or may not) mention Facebook, MySpace, etc.

[PROBES: How do you keep track of things? What systems for learning online do you have? Can you give us any examples of when you've asked your friends for help on assignments/homework online? What kind of online resources have you found that help you with your studies? How did you find them? What other gadgets or devices do you use for your studies?]

3. Think about the next stage of your education. Tell me what you think this will be like. *This will hopefully encourage them to reflect on what they envisage their role will be in the next stage. What they imagine the next educational-stage to be like will be something we can cross check as we follow them through the project.*

[PROBES: How do you think you will use technology in the next part of your education? If you think you will need to adapt the way you use technology, what sort of changes do you think you'll make?]

4. Think of a time when you had a situation where you needed answers or solutions and you did a quick search and made do with it. You knew there were other sources but you decided not to use them. Please include sources such as friends, family, teachers, coaches, etc. *Prompt for both academic and informal (domestic, personal…) examples.*

[PROBES: Did you simply take the first answer/solution you were able to find? What was the situation? What sources did you use? What led you to use them...and not others? Did they help? How? What sources did you decide not to use? What led to this/these decision/s? What did source A give you that you thought source B could not? Are there situations where source B would 'be a better choice for you? How did you decide when it was time to stop looking? How did you assess what was good enough?]

5. Have there been times when you were told to use a library or virtual learning environment (or learning platform), and used other source(s) instead?

[PROBE: What made you decide not to use what you were asked to use? What kinds of things do your instructors want you to do when you're looking for information? Does what you do look like that, and if not, what does it look like?]

6. If you had a magic wand, what would your ideal way of getting information be? How would you go about using the systems and services? When? Where? How?

7. What comments or questions do you have for me? Is there anything you would like me to explain? What would you like to tell me that you've thought about during this interview?

University Student Interview Questions

1. Describe the things you enjoy doing with technology and the web each week.

This is a conversational start in order to put the interviewees at their ease. We are trying to get a sense of their overall digital literacy so that we can set their information seeking behaviours within a broader context. Do they socialise online? (See probe.) Do they 'contribute' online in the form of pictures, video, blogs, etc.?

[PROBES: How important is the web for your social life, do you use it to keep in touch with your friends? What gadgets/devices/things do you use the most, is there anything you 'couldn't live without'? How much time on average do you spend online each week? Is there anything that bothers you about being online?]

2. Think of the ways you have used technology and the web for your studies. Describe a typical week.

We are looking at interviewees' use of educational technologies more specifically for study. We hope they will start to introduce informal learning, self-directed study, peer to peer learning, etc. We anticipate they will (or may not) mention Facebook, MySpace, etc.

[PROBES: How do you keep track of things? What systems for learning online do you have? Can you give us any examples of when you've asked your friends for help on assignments/homework online? What kind of online resources have you found that help you with your studies? How did you find them? What other gadgets or devices do you use for your studies?]

3. What did you think university studies would be like when you were in high school? How is your experience different from what you thought it would be? Describe what you think the next stage of your education will be. Tell me what you think this will be like.

This will hopefully encourage them to reflect on what they envisage their role will be in the next stage. What they imagine the next educational-stage to be like will be something we can cross check as we follow them through the project.

[PROBES: How do you think you will use technology in the next part of your education? If you think you will need to adapt the way you use technology, what sort of changes do you think you'll make?]

4. Think of a time when you had a situation where you needed answers or solutions and you did a quick search and made do with it. You knew there were other sources

but you decided not to use them. Please include sources such as friends, family, professors, TAs, tutors, coaches, etc. *Prompt for both academic and informal (domestic, personal…) examples.*

[PROBES: Did you simply take the first answer/solution you were able to find? What was the situation? What sources did you use? What led you to use them...and not others? Did they help? How? What sources did you decide not to use? What led to this/these decision/s? What did source A give you that you thought source B could not? Are there situations where source B would 'be a better choice for you? How did you decide when it was time to stop looking? How did you assess what was good enough?]

5. Have there been times when you were told to use a library or virtual learning environment (or learning platform), and used other source(s) instead?

[PROBE: What made you decide not to use what you were asked to use? What kinds of things do your instructors want you to do when you're looking for information? Does what you do look like that, and if not, what does it look like?]

6. If you had a magic wand, what would your ideal way of getting information be? How would you go about using the systems and services? When? Where? How?

7. What comments or questions do you have for me? Is there anything you would like me to explain? What would you like to tell me that you've thought about during this interview?